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No. 28.

IN ASSEMBLY, JAN. 27, 1853.

ANNUAL REPORT.

Of the State Engineer and Surveyor, on the Canals of
New-York, for 1852.

STATE ENGINEER AND SURVEYOR'S OFFICE, }
Albany, January 27, 1853. }

To the Hon. W. H. LUDLOW,

Speaker of the Assembly :

Sir—I have the honor to transmit herewith to the Legislature,
the annual report of the State Engineer and Surveyor on canals,
for the year 1852, required by chapter 377.

I am, very respectfully,

Your obedient servant,

WM. J. McALPINE,

State Engineer and Surveyor.

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REPORT.

STATE ENGINEER AND SURVEYOR'S OFFICE, }
Albany, January 27, 1853. }

To the Honorable the Legislature of the State of New-York :

In obedience to the requirements of section 15, chapter 377, of the Laws of 1850, I herewith submit the annual report on the canals of this State.

The number of persons employed in the engineer department, on the 31st of December in 1851 and 1852, was as follows :

	1851.	1852.
Division Engineers,.....	3	2
Residents,.....	8	9
First Assistants.....	14	10
Second ".....	35	27
Levellers, draughtsmen and clerks,.	60	29
Rodmen,.....	117	58
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Total,	237	135
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The number employed on the 31st Dec., 1852, will be reduced in a few days by the resignation of 2 residents, and the discharge of 48 other engineers.

The number, period of service and compensation of the engineers who have been employed on each resident's subdivision of each of the public works of the State, during the year 1852, and the expenditure which has been made on account of the engineer department, are given in the annexed table marked A.

The expenditure for the year 1852, has been as follows :

For the salary of division engineers,.....	\$3,599 99
“ resident “	13,641 16
“ assistants, rodmen and all others,	102,512 73
For pay for travel,	5,996 53
“ stationery,	1,948 62
“ fuel,	664 53
“ light,	651 39
“ office rent,.....	1,650 88
“ postage, telegraph and express,....	802 82
“ miscellaneous,	2,230 53
Making a total expenditure of,	<u>\$133,699 19</u>

The total expenditure in 1851, was \$130,554.12.

The daily expenditure for the pay of all persons employed in the engineer department at the termination of the year 1851, was,.....	\$484 66
The same at the termination of the year 1852, was,	317 85
The estimated daily expenditure for the same purpose, for the year 1853, is,	309 35

And the estimated expenditure for salary, travel and all other expenses of the department for the year 1853, provided the work now under progress, and that which is recommended as necessary for the convenience or safety of the navigation should be carried on, is \$102,737.25.

The number of structures, the length and estimated cost of the work under contract, the amount done in 1852, and the amount remaining to be done at contract prices on each resident's subdivision, and on each of the public works, are given in the annexed table, marked B.

The following is a summary made up from this table :

WORK UNDER CONTRACT.

	Length.	Structures.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
	Miles.	No.				
Erie (enlargement),.....	227.83	532	\$11,342,938 97	\$681,407 36	\$1,891,891 03	\$9,451,047 94
Erie (repairs),.....		4	28,992 96	8,735 84	8,915 96	20,077 00
Champlain (repairs),.....		3	50,680 34	9,300 00	23,510 64	27,169 70
Chenango,						
Black River and improvement, 48.43	68		346,610 00	68,159 82	83,979 82	262,630 18
Oswego, enlargement locks,....		14	494,108 00	101,470 00	101,470 00	392,638 00
“ repairs,		1	750 00	370 00	370 00	380 00
Oneida Lake,						
Baldwinsville side cut,.....		1	2,105 00			2,105 00
Cayuga and Seneca repairs,....		1	8,113 00			8,113 00
Chemung and feeder repairs,...		2	12,350 00	2,960 00	2,960 00	9,390 00
Crooked Lake,.....						
Genesee Valley,.....	27.00	63	571,048 43	218,029 69	288,981 69	282,066 74
Totals,.....			\$12,857,696 70	\$1,090,432 71	\$2,402,079 14	\$10,455,617 56

WORK UNDER CONTRACT—(CONTINUED.)

	Length.	Structures.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
	Miles.	No.				
Add work not under contract.						
Enlargement Erie,.....	1.48	17	\$347,000 00	.....	.....	.....
Oswego,		7	99,038 00	.....	.....	.....
Genesee Valley,.....	3.75	35	105,400 00	.....	.....	\$551,738 55
Total cost exclusive of land damages and superintendence,			\$13,409,435 25	.....	.....	\$11,007,356 11
The above table includes the following, which was put under contract December 30th, 1851, under chapter 485, Laws of 1851.						
Enlargement of Erie canal....	183.79	474	\$8,757,555 52	\$124,564 36	\$124,564 36	\$8,632,991 16
Black River canal,	43.87	59	219,950 00	5,034 82	5,034 82	214,915 18
Genesee Valley canal,.....	3.	5	154,710 00	1,677 26	1,677 26	153,032 74
Totals,			\$9,132,215 52	\$131,276 44	\$131,276 44	\$9,000,939 08

Under section 12, chap. 485, Laws of 1851, the Board of Canal Commissioners, together with the State Engineer and Surveyor, and the respective division engineers, on the 30th day of December, 1851, contracted for the completion of the Erie canal enlargement and the Genesee Valley and Black River canals.

At the same time they also contracted for the completion of the enlargement of the locks on the Oswego canal, under section 2, chap. 501, Laws of 1851.

On the 2d of January, 1852, a resolution was offered in the Canal Board, disapproving of the award of some of the contracts which had been made under these laws.

On the 9th of January I addressed a circular letter to the engineers in charge of these works, instructing them to furnish the contractors with bills of timber and the necessary directions to enable them to commence work on the contracts.

The engineers were also instructed to inform the contractors that the resolution above mentioned had been offered for the consideration of the Canal Board, and that they must not proceed under the directions referred to, except with the distinct understanding that they (the contractors) were to assume the responsibility of the future action of the Board on the said resolution.

Similar instructions for the prosecution of the work embraced in these contracts were given to the engineers from time to time. On the 31st of March, 1852, at the request of the Canal Commissioners, I furnished them with a statement of the contracts which were required to be commenced in 1852, so as to complete the unfinished canals in accordance with the requirements of the Laws of 1851. On the 2d of April the Commissioners issued the necessary directions to the contractors, and similar instructions were given to the engineers in regard to the commencement and prosecution of the contracts referred to.

On the 14th of May a circular letter was addressed to the division and resident engineers, informing them that the Court of Appeals had decided chap. 485, Laws of 1851, to be unconstitu-

tional, and that this decision precluded any further prosecution of the contracts made under that law, and directing them to measure up all the work which had been done, and the materials which had been procured, and to ascertain, as near as practicable, what other expenses had been incurred by the contractors.

The annexed table, marked C, shows the value of the work which has been done, and of the materials which have been delivered on the respective jobs at the contract prices.

A statement of the various preparations which have been made, and of the expenses which have been incurred by the contractors, has been made up as accurately as the facts could be ascertained.

In a very few instances some expenditures were made after the decision of the court was made known to the contractors.

The expenditure in the engineer department during the past year has been increased, in consequence of the necessity of measuring up the work done under the contracts let in December, 1851, the work on which was suspended in consequence of the decision of the courts, by the making of new estimates of the cost of the work embraced in those contracts, by running new lines and making new plans for the work, and by carrying on the work at so many points widely separated from each other; a force being thus required proportionately larger than if the intermediate portions had also been in progress, and necessarily larger than if the same amount of work had been in progress on a continuous line.

The following statement shows the cost of engineering and the whole expenditure made by the Canal Commissioners for the last ten years:

	Total paid by Canal Com'rs.	Total of Engineering.	Per cent on am't exp'd.
The year 1843,.. ..	\$805,230 84	\$44,644 28	5.5
" 1844,.....	720,449 93	25,872 26	3.7
" 1845,.....	333,717 68	22,485 25	6.8
" 1846,.....	182,367 30	11,573 86	6.4
" 1847,.....	166,111 64	17,158 28	10.3
" 1848,.....	864,767 36	49,772 96	5.7

	Total paid by Canal Com'rs.	Total of Engineering.	Per cent on am't exp'd.
The year 1849,.....	\$1,513,862 71	\$73,431 58	4.9
" 1850,.....	2,132,379 93	102,946 42	4.8
" 1851,.....	1,444,706 71	103,040 23	7.1
" 1852,.....	1,532,398 62	154,238 00	10.6
Estimated 1853,.....	1,600,000 00	102,737 25	6.4

The canals of the State are assigned to three division engineers corresponding to the divisions of the canals in charge of each of the Canal Commissioners.

The eastern division embraces the Erie canal from Albany to the Oneida Lake canal, a distance of..... 135.96 miles.

The Champlain canal,..... 66 "

And the Black River canal and improvement,.. 90.12 "

Making a total distance of..... 292.08 "

The middle division embraces the Erie canal from Oneida Lake to Wayne county,..... 73 miles.

The Chenango canal,..... 97 "

" Oneida Lake,..... 6 "

" Oswego,..... 38 "

" Baldwinsville side cut,..... 0 $\frac{3}{4}$ "

" Oneida River improvement,..... 20 "

" Seneca River towing path,..... 5 $\frac{1}{2}$ "

" Cayuga and Seneca canal,..... 23 "

" Crooked Lake,..... 8 "

" Chemung canal and feeder,..... 39 "

" Cayuga inlet,..... 2 "

Making a total distance of..... 312 "

The western division embraces the Erie canal from Cayuga county to Buffalo,..... 155 miles.

The Genesee Valley canal,..... 118 "

Making a total distance of..... 273 "

Making the whole length of the canals and public works of the State, exclusive of feeders, 877.8 miles.

The present condition of the unfinished canals is as follows:

ENLARGEMENT OF THE ERIE CANAL.

	Eastern Division.			Middle Div.		Western Divis.			Whole of E. Ca.		
	No. of double locks.	No. of single locks.	Length in miles.	No. of double locks.	Length in miles.	No. of double locks.	No. of single locks.	Length in miles.	No. of double locks.	No. of single locks.	Length in miles.
Completed and in use,	37	....	88.76	4	23.61	5	11	5.99	46	11	118.36
In use, and may be fully completed by spring of 1854,	10.00	....	9.09	....	....	15.53	....	....	34.62
Not in use, but may be brought into use by spring of 1854,	1.17	1	6.54	....	....	....	1	....	7.71
In progress of construction not included in above,	1	5.98	....	1	....	1	1	5.98
Work not commenced, including that under contract, let Dec. 30, 1851,	9	36.03	....	23.61	....	5	121.68	....	14	181.32
Totals,	135.96	....	68.82	....	....	142.80	48	26	347.99

NOTE.—Three guard locks are included in the No. of locks on the Western Division.

BLACK RIVER CANAL AND IMPROVEMENT.

	No. of single locks.	Length in miles.
Completed and in use,	94	30.77
May be brought into use by spring of 1854, ..	15	4.56
Work not commenced, including that on contracts let Dec. 30th, 1851, .....	....	42.50
Totals,	109	77.83

OSWEGO CANAL.

	No. of single locks.
Completed and in use,	5
May be brought into use by spring of 1854,	11
In progress of construction, and not included in above,	3
Work not commenced, including that on contracts let Dec. 30th, 1851,	3
Total,	22

GENESEE VALLEY CANAL.

	No. of single locks.	Length in miles.
Completed and in use,.....	79	88.00
Under progress of construction (well advanced),	33	23.25
Partially completed and abandoned by contractors,		3.75
Not commenced, including that contracted under law of 1851,.....	2	3
Totals,.....	114	118.00

NOTE.—All the work under contract on this canal, can be finished by the spring of 1854.

NAVIGATION AND REPAIRS OF THE ERIE CANAL.

The charge and management of the navigation of the canals are exclusively under the direction of the Canal Commissioners. In their absence the duty of visiting them devolves on the State Engineer and Surveyor. (Chap. 278, Laws 1847.)

The Canal Commissioners are authorized to call upon the resident and assistant engineers to perform services in the line of their duty. (Chap. 377, Laws 1850.)

The State Engineer and the several division and resident engineers have been called upon by the Canal Commissioners for surveys, plans and estimates for repairs proposed to be made, and the superintendence of the same, and for repairs of breaches.

The performance of these duties has necessarily brought the subject of repairs and the maintenance of the navigation under the notice of the engineer department.

The canal officers, for several years past, have been anticipating the early progress and completion of the enlargement of the canal, and have deemed it proper to expend the least amount on the old works that it was possible to do and maintain the navigation, inasmuch as it was yearly expected that the new structures and work would be commenced.

This was a judicious policy under the circumstances. The effect, however, has been that the canal has become very much

dilapidated, and the annual expense for repairs has been largely increased, and these expenses must necessarily increase until the enlargement is completed or new works are substituted for the decayed ones on the present canal.

I cannot refrain from expressing very serious apprehensions that the navigation will be in great jeopardy if prompt and extensive repairs are not made in the rapidly failing works on this canal.

The following extracts from the annual reports of the division engineers will show the condition of some of the most important parts of the canals.

Mr. Cole, the acting division engineer of the eastern division states as follows :

“Navigation was opened on the eastern division on the 22d of April, and continued without any interruption, except the usual detentions between locks Nos. 18 and 19, at Schoharie Creek aqueduct and between Oriskany and Rome, until in November, when two breaks occurred, one at Oriskany and one at Hoffman’s ferry. These were soon repaired, causing a detention of about two days.

“Except the points above named, and that portion of the canal not yet enlarged, between Schenectady and Little Falls, and between Utica and Oneida lake, in which there is considerable narrow canal, the division is in good condition.

Further remarks on this subject will be found under the head of the enlargement.

Mr. Richmond, the division engineer of the middle division, states as follows :

“The navigation was opened on the middle division the 22d of April, and continued, without interruption, through the season, with the exception of the usual delay at the Seneca river and at the old locks between Port Byron and Montezuma. To permit the use of the large boats without causing serious interruptions to the navigation, thorough repairs must be made in the channel of the canal, and additional width given at various points, particularly around the short curves in the old canal between Jor-

dan and Port Byron, and between Chittenango and the east end of the division. These repairs and improvements must necessarily be made before the opening of navigation in the spring."

Mr. Fay, the division engineer of the western division, states as follows :

" Navigation was opened on this division on the 22d day of April, and continued without any serious interruption until the 10th day of December last. At that time a break occurred half a mile east of Albion, which, owing to the lateness of the season was not repaired. There was, however, but little movement after that date, and that mostly of a local character.

" During the past year a few new structures have been built, aside from which no more than the ordinary repairs have been required to keep the division in good navigable condition, except an increased expense for cleaning out the bottom previous to the opening of the canal last spring, which, for several years before, had been too much neglected.

" A still further expenditure, and to quite an extent, will be required another season in cleaning out the canal and trimming off the slopes at narrow points, and raising the banks in places which are now too low (for the present depth of water), and is necessary to adapt it to the navigation of a class of boats that will be used when the old locks are widened and lengthened, as proposed to be done the coming winter.

" The canal along the State quarry above Upper Black Rock, corresponding to section 370, is quite narrow, and during the prevalence of heavy winds down the lake, the water is forced through it into Black Rock harbor with such velocity as to render the towing of boats up, difficult, and often rendering it necessary to double teams for that purpose.

" It is recommended that the canal at that place be widened as soon as circumstances will warrant, the cost of which, so far as is necessary to remedy the present difficulty, is estimated at \$16,014.

" Under act, chap. 122, Laws of 1852, the Canal Commissioners

made a contract for a bridge over the locks at Lockport, to connect Lock and Pine streets. The plan of this bridge consists of two spans, one over the locks, 113 feet, and one over the race, 55 feet in length, resting on a pier and abutments of cut stone. The superstructure to be of iron, with a roadway 20 feet wide, and two side walks 5 feet wide, each. The estimated cost of the whole work is \$7,000.

“All the locks on this division, except two guard and four lift locks, have been enlarged.

“The old guard lock at Tonawanda is 17 feet wide at the narrowest place, which is at the west end. The lock stands open during the season of navigation. The one at Black Rock is $17\frac{6}{8}$ feet in width, and was lengthened several years since to the length of the enlarged locks.

“In pursuance of a resolution of the Canal Board, the Canal Commissioners, on the 27th day of November last, made contracts for widening and lengthening the four remaining lift locks, consisting of the Pitt and Berlin locks in the county of Wayne, the Pittsford and the Brighton lower lock in the county of Monroe, to the length and width of those on the enlarged Erie canal.

“They are to be completed by the 1st day of April next, and are estimated to cost at contract prices, exclusive of materials furnished by the State, about \$24,660.

“When these locks are improved as contemplated, boats having the same draught of water as those now in use, but 3 feet wider and 17 feet longer, with an increase of tonnage corresponding to their increased dimensions, can then navigate the canal throughout the entire division.”

The condition of the other canals where improvements are required, is as follows :

CHAMPLAIN CANAL.

Mr. Cole remarks “that the failing condition of the old locks at Whitehall demands a vigorous prosecution, and the early completion of the new structures, so that they may be brought into use early next season.

"The estimated cost to finish these locks at contract prices is \$26,869.70. The value of work done upon them prior to the abandonment of the old contract was \$10,200, and the amount paid for the same was \$9,600.

"The other single locks at Fort Ann should receive early attention. It is proposed to build two locks combined. Surveys have been made, and estimates and plans commenced, which will be submitted to you and completed.

"There has been submitted to you, during the past summer, a plan and estimate for rebuilding the Moses Kill aqueduct. To insure uninterrupted navigation next season, the new structure should be completed at an early day.

"The banks of the Champlain, from the junction to lock No. 1, should be raised so as to give an increased depth of water at the junction."

BLACK RIVER CANAL AND IMPROVEMENT.

"All the work under contract, let prior to the 30th Dec., 1851, should be pushed forward to completion immediately. This, with the additional construction of a culvert on section No. 30, a few lock houses, and a dam at High Falls, would complete the Black River canal to its junction with the Black river. The Delta feeder, located about 6 miles above Rome, intended to afford an increased supply of water from the Mohawk river, should be built.

"The reservoir located in Woodhull, north and south branches of the Black river and Marsh lake, should be constructed immediately. This will furnish all the water required for the Black River canal, and supply the deficiency in Black river occasioned by the canal, and do away with the annual claims for damages to mill owners below Williamsville.

"Almost the entire portion of the work required for the improvement of the Black river, on the plan of 1851, yet remains to be done."

OSWEGO CANAL.

Mr. Richmond remarks that "the plan adopted for the enlargement of the locks on this canal, dispenses with a lift lock at Salina, and a guard lock at Fulton, having, as the number required of the enlarged size, seventeen lift and five guard locks.

"Five of the lift locks have already been enlarged, and four of them brought into use.

"Eleven lift and three guard locks, including the section work necessary to bring them into use, were put under contract the 30th of Dec., 1851, leaving one lift and two guard locks not under contract.

"By the terms of the contracts, the fourteen locks now in progress of enlargement are to be completed on the fifteenth day of April, 1854, and as the benefits of the expenditures cannot be made available for enlarged boats, until all of the locks shall have been enlarged, I would suggest the propriety of commencing the enlargement of the three locks above mentioned, as not being under contract, in season to have them completed simultaneously with those now in progress."

CAYUGA AND SENECA CANAL.

This canal is twenty-three miles in length, and connects the Erie canal at Montezuma with the Cayuga lake at East Cayuga, and the Seneca lake at Geneva.

Mr. Richmond further says that "there were originally on this canal 12 wood locks, of which five have been rebuilt on the composite plan, and of the size of the enlarged locks on the Erie canal, in pursuance of the act chap. 348, Laws of 1847.

"One has been dispensed with by lowering and extending the Geneva level to Waterloo, and the lock at Chamberlain's dam, 2 miles below Waterloo, is also, by the levels adopted for the enlarged locks, to be discontinued; the level immediately below Waterloo is to be extended to Seneca Falls.

"The lock alluded to in another part of this report as being necessary to connect the navigation of this canal with that of the

enlarged Erie canal at Montezuma, and as being under contract to be completed by the 1st of June next, is an addition to the number that would otherwise be necessary, thus leaving upon this canal when the locks shall have been enlarged, eleven in number, of which there are five in so dilapidated a condition as to require being rebuilt at the earliest practicable moment."

CHEMUNG CANAL.

This canal extends from the head of the Seneca lake to the Chemung river, at the village of Elmira, 23 miles, and has 16 miles of navigable feeder leading from the Chemung river, near the village of Corning, to the summit level at Fairport.

Mr. Richmond states that "there are located upon this canal and feeder 53 lift locks and 1 guard lock.

"All of the locks were originally constructed of timber, and were rebuilt with the same kind of material in the years 1841, 1842 and 1843. Many of them are now so much decayed that they cannot, without extensive repairs, be sustained longer than another season, and all of them will require renewing within a few years.

"It is believed that locks of the composite plan, similar to those now in use on the Crooked Lake canal, could be constructed on this canal at an average cost of about \$6,000 per lock, or about 20 per cent more than the cost of wood locks.

"Stone suitable for this kind of lock may be obtained in the vicinity of the canal.

"I would therefore recommend, when it becomes necessary to rebuild them, that composite locks be substituted in the place of the present ones.

"The work of rebuilding these locks should be commenced next winter, and from 8 to 12 constructed annually thereafter, until the whole number shall be renewed."

GENESEE VALLEY CANAL.

The Genesee Valley canal extends from the city of Rochester to the Allegany river, with which it connects at Olean, and is 106
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miles in length ; the branch extending from the Shakers to Dansville is 12 miles, making the total length 118 miles.

The Dansville branch, and that portion between Rochester and the Shakers, 52 miles, was completed and brought into use in 1810.

The main canal between the junction at the Shakers and the Genesee river feeder at Caneadea, 36 miles, was so far completed as to be brought into use in the summer of 1851, making 88 miles which has been in use since that period, and 30 miles between the latter point and the Allegany river not completed but mostly all under contract and in progress of construction.

Mr. Fay remarks that "navigation has been seriously interrupted on this canal the past season in consequence of the failure of the Mount Morris dam.

"During the spring freshets in the month of March last, about 100 feet in length of the dam was carried out entirely, and the remainder badly undermined and otherwise seriously injured for nearly its whole length. After many trials, attended with much difficulty owing to the loose and yielding nature of the bed of the stream and the almost constant succession of freshets, a temporary dam was substituted about the 26th May, when navigation was opened and continued until the 11th of June, at which time an unusual freshet for the season occurred, carrying out a portion of the south part of the temporary work, the old south abutment and guard bank, and about 60 to 70 feet more of the old dam. The last breach was closed by a temporary work about the 8th of July, when navigation was again opened and continued without further interruption at this point during the season. The rebuilding of the main dam was then commenced and has since been completed.

"It is 337 feet in length and 25 feet in height ; built of timber and stone, with a succession of aprons on the lower side, and a slope on the upper, each covered with solid oak timber one foot in thickness ; its base at the narrowest point is 65 feet, composed of timber and stone, and an entire base, including the earth fil-

ling on the upper slope, of not less than 110 feet in width up and down the stream. A sluice with gates was constructed in the body of the dam, by which the pond can be drawn down during low water, for the purpose of repairs to the dam or locks connected with that level, and which was found of material service in discharging the surplus waters while closing up the work. A new abutment and guard bank have also been constructed at the termination of the dam on the south shore. The work has been well and substantially built, and will compare favorably with any structure of the kind in the State.

“The navigation on other parts of the canal has been generally good, except slight interruptions occasioned by two small breaks on the old, and three on the new portion or that last brought into use.”

OLD CANAL, OR THAT PORTION BROUGHT INTO USE IN 1840.

“This part of the canal is not protected to any extent by docking or walls on the inner slopes, and being constructed through a light soil easily abraded by the action of the water, has become much filled in by the wearing off and wash from its banks, and is in many places quite narrow and shallow in consequence, and requires more or less cleaning out at points along its whole length.

“The mechanical structures also require considerable repairs, especially the lock gates, trunks of the aqueducts, which are of wood, and the bridges, most of which have now been in use over 12 years.

NEW CANAL, OR THAT PORTION BROUGHT INTO USE IN 1851.

“There are no sluices around the locks on this part of the canal, and much difficulty is experienced in maintaining the intermediate levels at an uniform height, by feeding through the locks, in consequence.

“Bars, which had accumulated at the foot of the locks, have been removed, and the slide sections generally have been further protected during the past season by slope walls and loose stone placed upon, and at the toe of the embankments, and apparently are as permanent now as could reasonably be expected; and al-

though the canal in the vicinity of Portage is upon a hazardous location, and one liable to require heavy expenditures annually to keep it up, may with care and watchfulness be maintained.

“The mechanical structures, though numerous, are mostly new, and the canal generally is in good condition.

“To complete this canal upon the plans and locations adopted in 1851, requires the construction of Ischua reservoir and a section of the Ischua feeder, the finishing of sections 95, 96 and 97, upon which the contractor has suspended work, owing to encountering a material which he could not excavate at his contract price (which is evidently too low), and has petitioned the Canal Board to cancel his contract for the same; the construction of a dam across the Genesee river, at the head of the feeder near Oramel; increasing the depth, and change of plan of discharge gates and culvert for Oil Creek reservoir; the erection of ten watch and twenty lock houses, ten of which to be on the canal now in use; the construction of 830 rods in length of back ditches at points where required along the same; lining the canal at Dell's, Nunda, on section 58, and at Portageville; and the construction of four wood culverts—one each at Nunda, the foot of locks 61 and 63, and near lock 67, for the purpose of affording drainage to the adjoining lands, none of which work is now under contract.

It is estimated to cost as follows, viz :

Ischua reservoir and 62 chains of feeder,.....	\$50,000 00
Finishing sections 95, 96 and 97,.....	30,000 00
Dam across the Genesee river near Oramel,....	1,500 00
The erection of 20 lock and 10 watch houses,...	8,000 00
Change of plan for Oil Creek reservoir,.....	5,900 00
Constructing 850 rods of back ditches,.....	800 00
Lining canal at points, as above,.....	8,000 00
Four wood culverts, as above,.....	1,200 00
Total,.....	<u>\$105,400 00</u>

UNFINISHED CANAL.

"An expenditure of \$20,000 will complete the canal from its present termination at Caneadea to Belfast, a distance of some three miles, which can be supplied with water through the prism of the canal, as it now is from the reservoir at Rockville, some four miles further south. The citizens of Belfast and those interested in the manufacture of lumber in that vicinity, are desirous this should be done at the earliest period, as it will furnish them a port of shipment so much nearer, which they deem a matter of considerable importance.

"A further expenditure of \$40,000 or \$60,000, in the aggregate, will complete it to the Rockville reservoir, but without an additional supply of water from other sources this would not furnish sufficient water for a good navigation at all seasons of the year between those points.

"Rockville reservoir was constructed previous to the suspension in 1842. Its outlet was built with timber, brush, trees, &c., which, from exposure, has become much decayed, and fears are entertained that it will not stand another freshet.

"A new outlet was contracted for in Dec., '51, at a point south of the old, where, by a short cut through a ridge, the flood waters can be discharged into a ravine leading into the former, but less rapid in its descent, and perfectly safe.

"To guard against the contingency of a failure of the old, the new outlet should be constructed and the old closed up by an embankment across the head of the same, which can be done now quite readily, and at small expense.

"There is no portion of the canal south of Rockville that can be brought into use until Oil creek and Ischua reservoirs and feeders, which are its only sources of supply, are completed.

"And these being among the most expensive works yet remaining to be constructed on this canal, one of which is, and the other is not, under contract, should be carried forward to completion so as to be ready for use by the time the other parts of the canal are finished.

SUPPLY OF WATER.

"Guages have been made during the past season of the water required to supply the canal now in use between the deep cut and the first lock above the junction, a distance of $11\frac{1}{2}$ miles. The results show that less than 100 cubic feet per mile per minute is required to cover the losses by leakage, evaporation and filtration, in this distance.

"The canal between Oramel and Olean is in fully as impervious a soil as that in the valley of the Cashuqua; and as it is the intention to line it through all loose and porous earth (for which ample provision is made in the estimate herewith submitted), it is believed that 80 cubic feet per mile per minute will be sufficient for the losses from the above causes on this part of the canal. To this estimate should be added the leakage at the locks, and lockage water, for 25 lockages per day each way, which is considered ample for the probable business of the canal for some years to come.

"Making the quantity required as per above conditions, as follows:

30 miles of canal at 80 c. ft. per mile per minute, equals per day,	3,456,000 c. ft.
Leakage at locks and lockage water of a 11 feet lift lock for 50 lockages per day at 900 c. ft. per minute, equals per day,	1,296,000 "
Total quantity per day,	<u>4,752,000 "</u>

or for 230 days, which is more than an average length of the seasons of navigation, 1,092,960,000 cubic feet.

"The sources from which it is proposed to obtain the above supply, are the ordinary flow of Ischua, Oil, Swamp, and Black creeks, and from the quantities held in reserve by Rockville reservoir already constructed in the valley of Black creek, and Oil and Ischua reservoirs yet to be constructed in the valleys of these streams.

“ Their capacity is as follows, viz :

Rockville reservoir,.....	12,000,000	cubic ft.
Oil Creek “	360,000,000	“
Ischua, “	68,000,000	“
Total,	<u>440,000,000</u>	<u>“</u>

“ In the years 1840 and '41, John Van Nortwick, Esq., the then engineer on this canal, instituted a series of daily guages of the flow of Oil and Ischua creeks, extending through those years, which shows a large surplus beyond the amount required to fill the proposed reservoirs and supply the canal up to the 1st of July of 1840, and the 1st of June of 1841. The natural flow of those streams for the months of June, July, August, September and October, in 1841, was 299,848,140 c. feet, and for the months of July, August, and September, in 1840, 314,455,300 cubic feet.

“ The canal would have required for the three months in 1840, 450,432,000 c. feet ; and for the five months in 1841, 727,056,000 cubic feet, rendering it necessary to have drawn from the reservoirs in 1840, 135,976,700 cubic feet, and in 1841, 437,207,860 cubic feet, to have supplied the deficiency. The season of 1841 was very dry, and Mr. Van Nortwick thinks his guages of that year, a rigid test of the capabilities of those streams.

“ The capacity of the reservoirs as now proposed to be constructed is 440,000,000 cubic feet, which would be sufficient to supply the deficiency upon the basis above assumed, even for a season as dry as that of 1841.

“ It will be observed that the natural flow of Swamp and Black creeks during the above named periods is not included in the estimate.

“ They will furnish in the lowest stage of water, as measured by the resident engineer, O. W. Story, Esq., the past year, 160 c. feet per minute, which would go to make up any deficiency that may occur from other sources.

“ Should the canal require more water than can be furnished from the sources now contemplated, additional reservoirs can be

constructed in the vallies of other streams at points convenient to the canal and at comparatively small expense."

THE ENLARGEMENT OF THE ERIE CANAL.

The completion of the enlargement of the Erie canal at various points is required to facilitate the transportation of the annually increased tonnage on the canal, to lessen the cost which is now increased by the crowd of business and the delays which are caused by the failure of the old works, and to replace the decayed structures.

On the 25th of August last I submitted to the Canal Board plans and estimates for temporarily enlarging the old locks between Port Byron and Rochester so as to permit boats of the enlarged size to pass through the entire length of the canal.

I also submitted plans and estimates of the cost of bringing into use, with 4 feet depth of water, that portion of the enlarged canal between Port Byron and Montezuma.

This work was directed to be done, and was contracted for in November last. The contracts provide that the work shall be completed by the 1st of June next.

I submitted at the same time an estimate of the cost of raising the banks for the entire length of the Erie canal where the enlargement has not been made, so as to obtain a depth of 5 feet of water. The estimated cost of the work was greater than the Canal Board was authorized by law to direct to be expended.

The use of enlarged boats will require an enlargement and improvement of the channel way. The elevation of the water on the plan recommended would furnish an additional width. On the straight portions of the canal, two boats of the enlarged size, drawing 3 feet of water, could pass each other.

At the curves and at some places where the width of the present canal has been contracted, it would be necessary to increase the width to permit two boats of this size and draft to pass each other.

It is believed that boats of the enlarged size will be gradually

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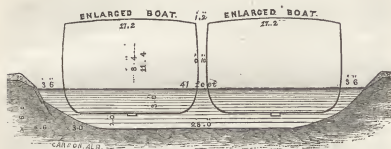
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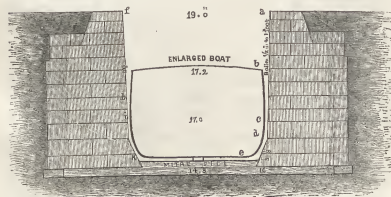
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SECTION OF OLD CANAL, WITH FIVE FEET DEPTH OF WATER, SHOWING TWO ENLARGED BOATS, DRAWING THREE FEET WATER.



- | | |
|--|---|
| f. Height of Lock walls 19 ft. 8 in. or 10 ft. lift. | a. Width of Lock, 19 feet. |
| g. Height of deck of boat at centre, when keel rests on mitre sill, 11 ft. 4 in. above bottom. | b. Width of Lock, 18 ft. 4½ in. |
| h. Width between nose of hollow quoins above this point, 18 feet. | c. Width of Lock 17 ft. 10 in., at 5 ft. above bottom of canal. |
| i. Surface of water, 5 ft. above bottom. | d. Width of Lock 17 ft. 8 in., top of big bevel. |
| k. Top of mitre-sill or bottom of canal. | e. Width of Lock 15 ft. 2 5-11 in. top mitre-sill. |

SECTION OF AN ENLARGED LOCK, SHOWING THE WIDTHS AT THE SEVERAL POINTS, AND THE SIZE OF BOAT THAT CAN PASS.



introduced to replace those annually worn out, and that these improvements in the channel way can be made from year to year so as to increase the capacity and reduce the cost of transportation until the enlargement can be completed.

The estimated cost of this proposed improvement is as follows:

Eastern division,	\$90,648 00
Middle do	78,500 00
Western do	364,819 00
	<hr/>
	\$533,967 00
	<hr/>

It is proper to add that the performance of this work will reduce the cost of the completion of the enlargement about \$200,000. In other words, the sum of \$334,000 would be required on this plan for the temporary facilities which it would afford while the enlargement is in progress.

The work could nearly all be done during the next season without inconvenience or interruption to the navigation, and in most instances rendered immediately available to the improvement of the present navigation.

The accompanying sketch will illustrate the proposed plans:

If the Legislature should direct the temporary enlargement of the channel way in the manner contemplated, a considerable amount of the work, as hereinafter stated, which the division engineers think necessary to be done, may be postponed for the present.

The following work, however, is required for the safety of the canal:

The construction of four aqueducts in Montgomery county, west of Schoharie creek; of the second lock, at Nos. 2, 31, 39 to 42; several waste weirs and culverts; a dam and feeder at Rome; a culvert at Albion; the aqueduct over the Oak Orchard creek, and the ship lock at Black Rock.

There are other portions of the work which also require early attention, especially the completion of the Seneca River aqueduct, and other works, as well as that which are stated in the following extracts from the annual reports of the division engineers :

Mr. Cole remarks that "the work let prior to Dec. 30th, 1851, should be completed at the earliest possible moment. A portion of the work embraced in the contracts made Dec. 30th, 1851, viz: sections Nos. 14, 15, 16 and 17, and structures thereon, should be completed immediately, so as to supply sufficient water for the double locks below.

"From Schoharie Creek aqueduct to Spraker's basin, the banks of the present canal should be raised, so as to give a sufficient depth of water in the aqueduct above mentioned. The lockages at the double lock, just below the structure, very often reduce the depth of water to less than three feet.

"Lasher, Printup's, Olstona and Philip's aqueducts should be replaced by new structures at an early day to make navigation secure, in which event sections Nos. 58, 59, 60, 61 and 62, with the structures thereon, should be enlarged. Sections Nos. 112, 120, 121 and 122, between Utica and Rome, with the structures thereon, should also be enlarged. When these and the work now in progress shall be completed, there will be no difficulty in supplying the east end of the long level with sufficient water.

"Locks Nos. 2, 34, 39, 40, 41 and 42 are in a very dilapidated condition, and demand early attention.

"Two waste weirs should be built immediately, one on section No. 30, the other on section No. 56, for the purpose of disposing of the drainage of adjacent lands, and thereby guard against breaks.

"A dam, bulkhead and feeder from the Mohawk has been located at Rome. This should be constructed as soon as practicable, so that there may be an increased supply of water on the long level.

MIDDLE DIVISION.

Mr. Richmond, division engineer, states as follows:

“ Within the limits of this division there were originally on the Erie canal ten lift locks, of which, two of ten feet lift each are already dispensed with, by reducing in the enlargement the old Summit level between Nine Mile creek and Jordan, to the levels east and west of the same; and on the completion of the enlargement on the plan adopted for crossing the Seneca river and Cayuga marshes, two of the remaining eight will be dispensed with, leaving, when the enlargement on this division shall have been completed, six lift locks, Nos. 47 to 52 inclusive, of which Nos. 47, 48 and 49, located in the city of Syracuse, are double enlarged and in use. North lock, No. 50, is also enlarged and in use, and the south lock will be brought into use next spring. Nos. 51 and 52 are double enlarged, and nearly completed. No. 50 is located about five miles west of Syracuse, at the eastern termination of the Jordan level.

“ The present Jordan level extends from this lock to the west side of the village of Port Byron, a distance of $22\frac{1}{2}$ miles.

“ Lock No. 51 is located outside of the present canal, about one mile west of Jordan; and when brought into use will constitute the western bounds of the Jordan level.

“ From this lock the line of the enlargement is independent of the present canal to lock No. 52, located near the west line of the village of Port Byron.

“ Lock No. 51 cannot, therefore, be brought into use until the independent line embracing sections 189 to 197 inclusive is completed, upon which there has already been expended the sum of \$74,949.26, and to complete the same will require a further sum of \$291,268.75.

“ Lock No. 52 being also located outside of the present canal, and at the east end of the extended level upon which the enlarged canal is to be carried across the Seneca river and Cayuga marshes, was not, by the plan of the enlargement, originally designed to be

brought into use until the enlargement of this portion of the canal, as also that between Jordan and Port Byron, should be completed.

“The relative positions, however, of the levels of the present canal, and those adopted for the enlarged canal, are such as to admit of the use of the new double locks, by temporarily raising the walls two feet with timber, to permit its connection with the navigation of the old canal east of Port Byron, and by so far completing the independent line as to admit of its use with four feet depth of water to its intersection with the old or present canal at Montezuma, a distance of $4\frac{1}{2}$ miles.

“Pursuant to a resolution of the Canal Board, dated August 25th, the enlarged canal between Port Byron and Montezuma is to be brought into use with 4 feet depth of water, which involves the raising of the walls of lock No. 52 and the construction of a few chains in length of section No. 197, the partial construction of sections 198 to 201 inclusive, the completion of the abutments and iron superstructure of two road bridges, one farm bridge, two stone culverts, and a composite lock on the Cayuga and Seneca Canal; the latter to connect the navigation of said canal with the enlarged Erie Canal at Montezuma. Also, in pursuance of the act, chap. 233, Laws of 1849, the old locks at the east and west end of the Seneca River level are to be temporarily enlarged to the same width and length as the other enlarged locks.

“Proposals for all of the above mentioned work (except sections Nos. 198, 200 and 201, which were put under contract in June, 1850), were received at Syracuse on the 30th day of November last, and contracts for said work have been entered into.

“The enlargement of the locks is to be completed by the 1st day of April next, and the remainder of the work by the 1st day of June next.

“From the foregoing, it will be perceived that after the first of June next, double enlarged locks are to be in use on the whole length of this division of the Erie Canal, east of the junction of the Cayuga and Seneca Canal at Montezuma.

“Although the bringing into use of lock 52, and the enlarged work between Port Byron and Montezuma, will remove the cause of the detentions hitherto experienced on this portion of the canal, yet the difficulty in passing the Seneca river will not be obviated.

“As the cut navigated by boats lies nearly at right angles with, and extends below the bed of the stream, it becomes the receptacle of the earthy matter borne down by the current.

“During the low stages of the river, there is less than the requisite depth of water on nearly the whole length of the level.

“The great difficulty and expense of excavating and maintaining a navigable channel across the river, furnishes the strongest evidence of the propriety of so far completing, and bringing into use the enlargement at this point, as to obviate the necessity of locking into and crossing the river as at present.

“This could be done by completing the aqueduct and section 202 connected with it, and by constructing a temporary lock of $7\frac{1}{2}$ feet lift, a few rods west of the Clyde river, and about 33 chains of enlarged canal from the west end of section 202, to the proposed lock.

“By this lock the navigation of the aqueduct level would be connected with that which extends across the marshes, a distance of five miles, having a depth of five feet, and a surface width of from 50 to 60 feet, the entire distance.

“The aqueduct and section 202 connected with it was put under contract in September, 1849; the work was immediately commenced and has since steadily progressed. It is now so far advanced that it could be brought into use in the spring of 1854.

“To accomplish this desirable improvement would require an expenditure not exceeding \$125,000.

“In view of the advantages of dispensing with the use of one lock, and the great benefits to the navigation by being taken out

of the Seneca river, I would respectfully recommend the completion of the aqueduct, and the construction of the additional work necessary to bring the same into use on the plan above suggested at the earliest practicable period.

“The early completion and use of the new aqueduct over the Butternut creek is desirable for the improvement of navigation at this point, and to obviate the necessity of extensive repairs on the old structures.

“It could be completed and brought into use in connection with about one mile of enlarged canal, by an expenditure of about \$24,000.”

Mr. Fay, the division engineer of the western division, states as follows:

“The sections through the villages of Lyons, Clyde, Newark, Brockport, Albion and Medina, can, if progressed with, be completed by the opening of the canal next spring, except those through Lyons and Newark, which cannot be fully finished until three bridges on the former and two on the latter section are constructed. The new work is now in use through all these villages, but the navigation would be improved and better accommodated by its completion.

“It would also promote the individual and public interest in the several localities by disencumbering their streets and premises of the materials now furnished for the works, and enable them to shape their improvements and buildings permanently with reference to the enlarged canal.

“The old doubled arched culvert on the Albion section is in a precarious situation and liable to failure at any time. The new one has been commenced and can be finished, simultaneously, with the section work connected therewith, and obviate the hazard of a narrow and isolated cross bank now required there, and much improve the navigation at that point.

“The aqueduct over the Oak Orchard creek, in the village of Medina, is quite a large structure, far advanced towards comple-

tion, and, in connection with the section through that village, should, for the safety of the canal and the interests of navigation, be finished at an early day.

"Sections 13 and 14 of the independent line on the mountain ridge can be finished the present winter. By building two bridge superstructures, one a change of the canal at the west end of section No. 4, and the other a towing-path bridge over the Tonawanda creek, the independent line extending from the old canal on section No. 12 to said creek, a little west of Pendleton, can be brought into use next spring. Sections Nos. 5 to 12, inclusive, cannot progress, except during the suspension of navigation, and will require two seasons to finish them.

"The completion of the above sections is much desired to improve the navigation of this part of the canal, and to enable an additional supply of water to be furnished at the head of the locks at Lockport for the eastern part of the division.

"The completion of sections Nos. 1 and 2, east of Rochester, and sections 1 and 2 in the city of Buffalo, now nearly done, is not of so much importance to present navigation. Lock Berlin lock, if finished, cannot be brought into use until an independent line, upon which it is located, extending from there to Lyons, about four miles, is constructed.

"The new ship lock at Black Rock is completed, but a large amount of under water excavation yet remains to be done before vessels can enter and leave it. The old lock is in a failing condition, leaks badly, and is worked with much difficulty. The safety of navigation requires that this excavation should be finished so that the new lock can be brought into use, and the old one closed up entirely. A break at this point would be attended with serious consequences to navigation, as it would cut off the greater portion of water for the supply of the canal, as far east as Seneca river. To afford additional facilities for the yearly increasing business at Buffalo, and to protect the work already done on the Erie basin and slips, it is deemed necessary that the work should be carried forward to completion at the earliest possible period."

NEW SURVEYS, &C., MADE IN 1852.

During the past year, new surveys, plans and estimates for the completion of the unfinished canals have been made, and those made in 1851 have been revised. The result of these examinations are given in the following extracts from the reports of the division engineers :

The estimated cost of completing the enlargement of the Erie canal, on the plans and locations of 1851, is as follows :

Cost at contract prices for completing work under contract prior to December 30, 1851,	\$778,704 78
Cost at contract prices of widening and lengthening the old locks between Mohtezuma and Rochester,.....	39,352 00
Cost at contract prices of completing work let December 30, 1851,.....	8,632,991 16
Estimated cost of work not under contract,.....	347,300 55
	<hr/>
	\$9,798,348 49

The estimated cost of the same, according to the last report, was \$8,671,161 20

From which, for the purpose of comparing the former and present estimates, must be deducted the amount of work done during the year 1852,..... 704,672 50

\$7,966,488 70

And must be added the cost of enlarging the old locks, not included in that estimate,..... 39,352 00

8,005,840 70

Showing an increase, in the present estimate, of.. \$1,792,507 79 .

This increase is accounted for on the several divisions, in part, as follows :

EASTERN DIVISION.

The increase of cost on this division, by the addition of "hard-pan and quicksand," contingencies, &c., is about \$65,000.

MIDDLE DIVISION.

By adding the probable amount of "hard-pan and quicksand" on work let December 30th, 1851, not included in last year's estimate,.....	\$38,785 00
By cost of work not under contract, and not included in estimate of last year,.....	41,000 00
By increase in quantities, and the addition of a larger per centage for contingencies,.....	130,615 94
Total eastern division,.....	<u>\$210,400 94</u>

WESTERN DIVISION.

By adding the probable amount of "hard-pan and quicksand" on work let December 30th, 1851, not included in last year's estimate,.....	\$267,380 08
By adding cost of work not under contract, and not included in estimate of last year,.....	108,974 92
By adding to quantities short last year, the amount remaining to be done on work under contract prior to Dec. 30th, 1851,.....	102,728 83
By a revision of the quantities, and classification of the same, in accordance with the contracts on work let Dec. 30th, 1851,.....	376,621 72
By an addition of 10 per cent for contingencies on the amount at contract, and estimated prices of of all work not under contract prior to Dec. 30th, 1851, and not included in the estimates of last year,.....	561,057 44
Total western,.....	<u>\$1,416,762 99</u>
Total on the Erie canal,.....	<u>\$1,692,163 93</u>

The cost of completing the Black River canal and the improvement of the Black river, on the plans and locations of 1851, is as follows:

The cost at contract prices of completing work under contract prior to December 30, 1851, is.....	\$47,715 00
The cost at contract prices of completing the work let December 30, 1851, is.....	214,915 18
Total,.....	\$262,630 18
The estimated cost of the same according to the last report, was.....	\$324,601 45
From which is to be deducted the amount of work done in 1852,....	68,159 82
	<u>256,441 63</u>
Showing a difference of.....	<u>\$6,188 55</u>

The cost of completing the enlargement of the locks on the Oswego canal, is as follows:

The cost at contract prices of completing work let December 30, 1851,.....	\$392,638 00
The cost of work not under contract,.....	99,038 00
Total,.....	\$491,676 00
The estimated cost of the same according to the last report, was.....	\$579,387 96
From which is to be deducted the amount of work done in 1852,....	101,470 00
	<u>477,917 96</u>
Showing a difference of.....	<u>\$13,758 04</u>

The cost of completing the Genesee Valley canal is as follows:

The cost at contract prices of completing work under contract prior to December 30, 1851,.....	\$129,034 00
The cost at contract prices of work let December 30, 1851,.....	153,032 74
Carried forward,	<u>\$282,066 74</u>

Brought forward,.....	\$282,066 74
The cost of work not under contract, estimated at.	105,400 00
Total,.....	<u>\$387,466 74</u>
The estimated cost of the same according to the last report, was	\$473,367 78
Work not under contract, estimated at.....	44,000 00
	<u>\$517,367 78</u>
From which is to be deducted the amount done during 1852,.....	255,794 17
	<u>261,573 61</u>
Showing a difference of.....	<u><u>\$125,893 13</u></u>

The cost of completing the enlargement of the canal, according to the plans and locations which have been made during the present year, and which are recommended by the division engineers, is as follows:

The cost at contract prices of completing work under contract prior to December 30, 1851,.....	\$778,704 78
The cost at contract prices of enlargement work let Nov. 30, 1852, between Port Byron and Montezuma,.....	32,867 37
The cost of all other work, including that let Dec. 30, 1851, at estimated prices,.....	8,726,730 79
	<u>\$9,538,302 94</u>
The cost at contract prices of enlarging the old locks, &c.,.....	39,352 00
Total,	<u>\$9,577,654 94</u>
Estimated cost on the plan and locations of 1851,.	9,648,348 49
Showing a difference of.....	<u><u>\$70,793 55</u></u>

The cost of completing the Black River canal and improvement on the plans and locations, which have been made during the present year, is as follows :

The cost at contract prices of completing work under contract prior to December 30, 1851,.....	\$47,715 00
The cost of all other work, including that let Dec. 30, 1851, at estimated prices,.....	155,400 00
	<hr/>
	\$203,115 00
Estimated cost on the plans and locations of 1851,	262,630 18
	<hr/>
Showing a difference of.....	\$59,515 18
	<hr/>

The increased amount of land damages on the new plan will reduce this apparent difference in the estimates.

Details of the foregoing estimates will be found in the appenpiz.

The following is a summary of the foregoing statement.

NAMES OF CANALS.	Cost at contract and estimated prices, by the report of State engineer last year.	Cost at contract and estimated prices on plans and locations of 1851, as now estimated.	Increase of estimates of this year over last.	COST OF COMPLETING.	
				On plans and locations of 1851.	On plans and locations now recommended.
Enlargement of Erie Canal,....	\$8,005,810 70	\$9,798,348 49	\$1,792,507 79	\$9,648,348 49	\$9,577,654 94
Black River canal,.....	256,441 63	262,630 18	6,188 65	262,630 18	203,115 00
Oswego canal,.....	477,917 96	491,676 00	13,758 04	491,676 00	491,676 00
Genesee Valley canal,.....	261,573 61	387,466 74	125,893 13	387,466 74	387,466 74
	\$9,001,773 90	\$10,940,121 41	\$1,938,347 51	\$10,790,121 41	\$10,659,912 68
Add amount remaining to be done on work under contract not included in above statement.					
Repairs of Erie canal,.....			\$20,077 00		
“ “ Champlain canal,.....			27,169 70		
“ “ Oswego canal,.....			380 00		
“ “ Baldwinsville side cut,.....			2,105 00		
“ “ Cayuga and Seneca canal,.....			8,113 00		
“ “ Chemung canal and feeder,.....			9,390 00		
				\$67,234 70	\$67,234 70
Total exclusive of land damages and superintendence,.....				\$10,857,356 11	\$10,727,147 38

The changes in the plans and locations of the enlargement of the Erie canal, which are proposed by the division engineers, are as follows :

On the eastern division, from section No. 13 to No. 19 inclusive, considerable change is proposed to be made. The proposed line is more direct than the former, and affords an opportunity of constructing a considerable portion of these sections during the summer season.

On sections 60 and 62 another change is proposed. Instead of building a new bank out in the river at the Little Nose, which would have to be very high and well protected, the present tow-path bank of the old canal is left undisturbed and the enlargement made entirely on the berme.

This change not only makes a more direct line, but reduces the expense very materially.

The plan and location of the dam at Rome is the same as adopted in 1851, but the plan of the bulkhead at that place is changed from an open outlet with a bridge over it, to an arched culvert for that portion crossed by the plank road, the details of which may be seen by referring to the plan. The quantities will be the alike in both plans.

On the Middle Division Mr. Richmond does not recommend any essential changes in the plans adopted in 1851.

West of Syracuse they were substantially those recommended by him previous to 1849.

WESTERN DIVISION.

Mr. Fay remarks as follows :

"A resurvey and estimate of the entire line has been made during the past season upon such modifications of plans and changes of locations as were deemed valuable to the public and necessary to the best economy in construction, having reference to permanency and future use.

"Commencing at the east bounds of Wayne county, the locations of the two surveys are the same to the point of divergence

at Macedon ; thence this survey follows a section of canal enlarged and in use to its termination, a short distance west of the upper Macedon lock ; thence along the old canal with such improvements as can be made to Fairport, on a grade depressed $2\frac{1}{2}$ feet so as to obtain 7 feet depth of water without elevating the surface above its present height through Perrinton swamp. At Fairport it diverges to the south, passing through a depression in the ridge at that place by a cut averaging $37\frac{1}{2}$ feet in depth for 78 chains in length, to a point in the old canal called the "Ox-bow" (the material from which cut will be required in the embankment west of the same) ; thence along the old canal half a mile, when it diverges to the west and passes in a straight line across the valley of the Irondequoit to the east end of the Carterville embankment, leaving Bushnell's basin, the most southerly point on the old canal, one mile to the south ; thence along, and in the immediate vicinity of the present canal to Pittsford.

"By locating Pittsford lock near Billingshurst's basin, the Macedon level is extended across the Irondequoit valley to near Allen's creek, and depressed, so as to allow of an independent and very direct line, between Pittsford and Billingshurst's. From Billingshurst's through Cobb's Gap, which is a depression in a narrow ridge of that name, and in which an average cut of 27 feet for 33 chains is incurred, the line is $1\frac{1}{2}$ miles south of Brighton, the most northerly point of the old canal, and very direct to its intersection with the same just above the west Brighton lock ; and thence follows the line of the old canal to the Rochester aqueduct.

"West of Rochester the locations are mainly the same as those of 1851, except at Holley and between Middleport and Lockport.

"An independent line commences a few chains east of the west bounds of Monroe county, and runs directly across the great bend east of Holley, to the high embankment over the creek in that village ; thence along the old canal to the west end of the basin, where, by another independent line 32 chains in length, the bend west of that village is cut off. The cost on this location exceeds that of 1851, but the line is much improved in direction and the distance $8\frac{1}{4}$ chains less.

"Sections Nos. 327, 328 and 329, between Middleport and Lockport, are located nearer the ridge, which reduces the cost and still preserves a good line. Near Lockport, on sections Nos. 335 and 336, the line is changed by running it straight for about 64 chains, avoiding several curves, reducing the distance a little, and lessening the expense of construction.

"The form of prism upon which this survey and estimates are based, is as follows: From the east line of Wayne county to a point near Billingham's, 3 miles west of Pittsford, a distance of 39.75 miles, the width on bottom to be $42\frac{1}{2}$ feet, depth 7 feet, and surface of water 60 feet, except when an increased width can be obtained with but little or no additional expense, as across the Montezuma marshes, for a part of the distance between Pit Lock and Lock Berlin, and between Port Gibson and Macedon.

"From the lock at Billingham's to Rochester, width on bottom $50\frac{1}{2}$ feet; at surface of water 68 feet, and depth same as east of there. At the west end of the Rochester aqueduct, bottom width 52 feet; $25\frac{1}{2}$ miles east of Lockport, the same, increasing regularly from this point to $56\frac{1}{4}$ feet bottom width at Lockport. Surface width at Lockport, 80 feet, and at Rochester, $70\frac{1}{3}$ feet. The bottom at Lockport to be depressed 18 inches below the top of mitre sill of the lower lock at that place, and descend from thence on a regular inclination to the crown of the arches of the Rochester aqueduct. The depth of water at Rochester to be $7\frac{1}{3}$ feet above bottom of the aqueduct, and at Lockport $9\frac{1}{2}$ feet above bottom of canal, or 8 feet above top of mitre sill, when sending forward the maximum supply; at other times can be reduced as occasion requires, even for $1\frac{1}{2}$ feet, without infringing upon the depth necessary to a good navigation. Inclination on the bottom, 22 inches; on the surface, $2\frac{1}{2}$ feet or a total maximum inclination of 4 feet in this distance. Between Lockport and Tonawanda, same as per location of 1851. From Tonawanda to Black Rock, width on bottom 70 feet, at surface 90 feet, depth of water 8 feet, inclination of bottom 1 inch per mile. From the latter point to sections 1 and 2, at Buffalo, to be 100 feet wide and 8 feet deep, sides nearly perpendicular.

"The canal between Black Rock harbor and the guard lock at Black Rock, to be made separate from the race which supplies the mills at that place; and from upper Black Rock to the State quarry to be constructed independent of the harbor. This will obviate the difficulties navigation now experiences at lower Black Rock, by the rapid current created in drawing water through the canal for supplying the mills, and in the upper part of the harbor from the ice which accumulates there when passing out of the lake in the spring of the year. It will also afford better facilities for feeding the canal from the harbor.

"The inside slopes of the banks protected across heavy embankments, and through that portion of Tonawanda creek used for the canal by a timber and plank docking, through the towns and villages by a vertical or battered wall, and at other places by a slope and pavement wall, built up from the bottom, and encircling the inner angle of the banks.

"The slope walls built on the outside of the banks along Niagara river, to be sufficiently heavy to resist the action of the ice.

"It being the intention in the enlarged canal to draw mainly from Lake Erie the supply of water required for the same as far east as Seneca river, the foregoing dimensions and inclinations are determined with reference to that as well as to the most favorable navigation, all things considered; but notwithstanding this provision, it is deemed indispensable to maintain the Oak Orchard creek and Genesee river feeders in serviceable condition as now, that they can be used for supplying the canal as circumstances may require.

"It is not contemplated by this plan to remove the Genesee river guard lock too near the junction of the feeder with the canal at Rochester as designed per plan of 1851, because it is deemed to be unnecessary in accomplishing the enlargement, but the dam across the river at the head of the feeder should be maintained enough above the surface of the enlarged canal to turn the water down the feeder.

"The enlarged double lock and canal at Macedon now constructed will be available upon this location, but only a small portion

of it upon that of 1851. The three enlarged locks and $1\frac{63}{100}$ miles of canal between Rochester and Brighton, now nearly completed, will be available upon the location of 1851, but not upon that of this year. The location of 1852 is $1\frac{18}{100}$ miles longer in the aggregate, and will require the construction of two lift locks more, but one aqueduct for railroad crossing, and one guard lock less. It is believed it will subserve the public interests as well, if not better, be more permanent when completed, and cost less in construction.

"The independent line between Fairport and Rochester, leaves Bushnell's to the south and Brighton to the north, both of which points can be reached by the old canal, should it be deemed advisable to maintain such communications through those places in connection with the enlargement.

"Enlarging on the line of old canal between Macedon and Rochester, with such improvements as can well be made without increasing the expense too much, though $6\frac{1}{10}$ miles longer than the location of 1851, and $4\frac{81}{100}$ miles longer than that of 1852, would materially lessen the first cost of construction in this distance, as shown by the comparative estimates of the three several locations herewith presented.

"The mechanical structures to be of good character, well and substantially built, and adapted to the locality and purposes for which they are intended. The bridges, in all cases, to have durable stone abutments, and the superstructures through the towns and between Tonawanda and Buffalo to be of iron; at other places, of timber, on the plan of braces, straining beam, &c., or of plank, like those on the Genesee Valley canal.

"Comparative estimates of the three lines between Macedon and Rochester:

"First: Cost at contract and estimated prices as per location of 1851, adopting inside walling:

$18\frac{57}{100}$ miles, cost,..... \$1,799,759 39

Second: Cost at estimated prices of enlarging per line of old canal, improved:

$24\frac{81}{100}$ miles, cost,..... \$862,343 87

Third: Cost at estimated prices as per plans and location of 1852:

20 $\frac{5}{8}$ miles, cost,..... \$1,788,857 10

Distance saved between Macedon and Rochester, per location of 1851, over the canal as now navigated, 7 $\frac{1}{8}$ miles.

Distance saved between same points per line of old canal, improved, 0 $\frac{2}{3}$ miles.

Distance saved between same, per location of 1852, 5 $\frac{3}{8}$ miles.

"The relative position of the several locations between Macedon and Rochester is shown on the accompanying sketch or map herewith presented.

"This being a very important part of the canal, and one in which the most distance can be saved in a given length, proportioned somewhat to the cost incurred, I would recommend that further surveys and estimates be made, embracing all practicable routes, in order to obtain a full knowledge of the advantages and disadvantages of each, so that the best, all things considered, can be selected previous to the further progress of the work."

The changes in the plans and location recommended as above by the Division Engineers, will require in many cases a careful revisal before they are again submitted to the Canal Board for their decision. As none of this part of the work is now in progress, it is unnecessary, at this time, to discuss the merits of the changes proposed by the division engineers.

It is believed that the completion of the unfinished canals will be effected at less cost, if the work is so arranged as to avoid the progress of the whole of it at the same time.

When a moderate amount of work is placed under contract, competition between the bidders induces them to offer the lowest terms.

When a large amount is offered for contract, it induces many persons to leave other occupations and to engage in one for which they have neither the skill or experience to conduct in the most economical manner.

Such persons would lose money at prices at which experienced contractors would make fair profits, and the consequence is an abandonment of the contract and a re-letting at increased rates, and application to the Canal Board and Legislature for remuneration for their losses.

The history of the construction of every State work shows that the State is compelled, eventually, to pay at least the actual cost, and hence it becomes important for her own interest to have experienced and skillful contractors..

It may be further remarked that by placing a large amount of work under contract at the same time, the demand for materials, and workmen of particular classes, enhances the cost and adds largely to the expenses of the contractors, and that they will either demand higher prices in their offers or will subsequently obtain remuneration at the additional expense of legislation.

In the future prosecution of the enlargement of the Erie canal, those portions requiring the longest time for completion, and such other work as will, when done, be of the most benefit to the navigation either by increasing the capacity of the canal or reducing the cost of transportation, should be first constructed.

The chief part of the unfinished portions of the eastern and middle divisions of the canal, the independent line across the Montezuma marshes, the heavy work bordering the Niagara river and that between Macedon and Rochester, should be first commenced, and followed by the lighter and less important work on the remainder of the western division.

THE COMPLETION OF THE ENLARGEMENT OF THE ERIE CANAL.

The early completion of this work has been discussed and advocated since 1835, by nearly every Legislature, by the successive canal officers, by the citizens of the State generally, and especially by those in the western and central portions, and in New-York city.

During this long period, the discussion of this project has developed nearly all of the arguments which can be adduced on the subject, and leaves at the present time but little more to do than to collate them.

The extension and completion of rival avenues of trade, and the recent wonderful development and expansion of the railroad system, has directed attention at the present moment to the comparative merits of the different channels of trade from the north-western states, to the Atlantic seaboard.

The temporary suspension of the work on the enlargement, renders this an appropriate time for a discussion of its importance and the effect which its completion will have upon the commercial interests of the State.

The geographical features of that portion of the United States east of the Rocky mountains, are characterized by the slopes which discharge their water into the Gulfs of Mexico and St. Lawrence, and those which drain into the Atlantic, south of the latter.

The relative proportions of the areas of these drainages are as thirty-two, eleven, and ten.

The Mississippi river and its tributaries drain one-half of this entire area, its north-eastern arm stretching into our State to within two hundred miles of tide water, and its north-western to within five hundred miles of the Pacific ocean.*

* The length of the Mississippi and its tributaries is 51,000 miles, of which over 20,000 miles are navigable.

The most important portion of the north-eastern drainage passes off through the St. Lawrence.

The dividing line of the water shed into these two outlets is contiguous to the chain of great lakes, and is also near the navigable waters of the central and north-eastern tributaries of the Mississippi.

The Atlantic slopes are drained by a number of rivers which are of short extent compared with those just mentioned.

These natural arteries in the early occupation of the country, limited the area of trade, directed its flow, and indicated the position of the commercial depots for the exchange of its surplus productions for the manufactures and luxuries of an older State.

As the population increased and expanded, various artificial tributaries to these natural channels were constructed to meet the increased demands of trade.

The aggregation of capital at the commercial depots and amongst the denser population near the Atlantic seaboard, led to the construction of many additional artificial channels. These in some cases were constructed to divert trade from the lines of the geographical arteries.

The advantages of climate, population and easy access to ocean navigation have given the northern natural channel through the lakes a preponderance in the magnitude of its trade over the southern channel through the Mississippi and its navigable tributaries.

These advantages, however, would have been lost if this trade had been forced to seek a communication with the ocean as far north as the Gulf of St. Lawrence, where it would have encountered a cold climate, and waters inaccessible for a considerable portion of the year.

The topographical features of the State of New-York, afford the only depression in the great chain of mountains running parallel with the Atlantic coast, which admits of the construction of an artificial channel for an easy outlet to the commerce of the

western chain of lakes, and their numerous natural and artificial tributaries.

Other depressions exist in this range of mountains through which avenues for the division of this trade have been projected or constructed. The State of Pennsylvania has opened a water communication (with a short break) from the Susquehanna to the Ohio, and the Virginia canal, when completed, will open another from the James river also to the Ohio, but these works are compelled to surmount an elevation which adds largely to the cost of transportation.

Private enterprise is also engaged in opening other communications between the Atlantic seaboard and the great producing regions of the north-west.

The extent of the trade and commerce thus sought to be reached by these undertakings, is a prize worth the efforts of a people and an age to whose industrial enterprise history has furnished no parallel.

The region affording this trade embraces the six north-western States and Missouri, containing a population of over five millions, which doubles once in twelve years, and which has an annual cereal production equal to three hundred millions of bushels.

The surplus productions of this vast region now seek a market, chiefly on the Atlantic, and must pass through the several channels of trade already spoken of.*

These channels stated in consecutive order, are as follows:

First, from Lake Erie.

By Lake Ontario and the St. Lawrence to Quebec.

By Lake Ontario and railroads to Boston.

By Lake Ontario, the St. Lawrence and the projected canal, to Lake Champlain, and thence to Boston or New-York.

By the New-York canals and the Hudson to New-York.

By the New-York central and southern railroads to New-York.

* In 1851, the exports of wheat and flour by the lakes were equivalent to twelve millions of bushels.

Second, from the Ohio River.

By the Pennsylvania canals and railroads to New-York, Philadelphia and Baltimore.

By railroad and projected canal to Baltimore.

By canal to Richmond.

And third,

By the Mississippi and its tributaries to New-Orleans.

The consideration of the comparative advantages of these various routes requires an examination into the cost of transport on the ocean, lakes, rivers, canals and railroads.

The elements of the cost of transport in these cases consists of loading, conveying, discharging, warehousing, insurance, and in artificial channels, the necessary charges to repay the cost of construction and maintenance.

The *cost*, instead of the *charges*, should be considered in this comparison, because the latter fluctuate on the various routes and on the different articles which are conveyed, competition reducing them to a minimum, and monopoly raising them to a maximum.

The cost of loading and discharging depends upon the price of labor and the facilities afforded, and the cost of insurance upon the character of the navigation.

The cost of conveying upon the ocean depends on the amount of the business concentrated at the seaport, and the facilities for reaching the open sea.

New-York and Boston possess, therefore, advantages over the other cities named.

The Hudson affords an example of the best description of river navigation in consequence of the uniformity of the flow and the smoothness of its waters, allowing the use of either sail or steam vessels, and of light hulls; thereby increasing the proportion of the weight of the cargo to the whole weight moved.

The suspension of its navigation during the winter increases the cost of transportation, as the interest and expenses must be charged on the business done during two-thirds of the year.

The Mississippi and its larger branches have the advantage of a long route and a current of from three to six miles an hour in the direction of the greatest trade. The fluctuations of their waters, the higher price of labor, the necessity of employing steam vessels exclusively, and the hazards of the navigation, increase the cost of transportation on these waters.

The cost of movement on a canal depends upon the relative sectional areas of the boat and of the canal—upon the actual size of the two, and upon the elevation to be overcome.

The cost of transport by canals and railroads is increased by the tax necessary to be levied to give a remuneration for the capital invested, and also to pay the current expenses of operating and maintaining the works.

The other circumstances constituting the expense of these modes of transport, will be treated of in the following pages.

Having thus stated the characteristics of the several modes of transport, it becomes necessary to ascertain the actual cost of each, for the purpose of making a practical application of the results thus obtained to the several channels of trade from the interior to the sea coast.

In arriving at these general results, it will not be necessary to regard those fluctuations of trade and commerce tending to increase or diminish the cost of transport, which are of only a temporary character.

These rates of cost have been arrived at with great care, yet if other persons should entertain different opinions in regard thereto, or if errors should be found in their application to the different routes, the results herein stated cannot be so materially changed as to affect the general conclusions.

It becomes necessary to ascertain the cost of ocean transport for the purpose of comparing the several routes on which articles for export are or may be expected to be carried, and for this purpose the following table is given, which shows the distances travelled by sailing vessels, and the ordinary rates of charges from the American ports already named :

TABLE OF CHARGES.

	To LIVERPOOL.			To HAVRE.			To HAVANA.			To RIO JANEIRO.		
	Miles.	Per ton.		Miles.	Per ton.		Miles.	Per ton.		Miles.	Per ton.	
		Voyage.	Per mile.		Voyage.	Per mile.		Voyage.	Per mile.		Voyage.	Per mile.
			Mills.			Mills.			Mills.			Mills.
*From Quebec,.....	2,910	\$11 00	3.75	3,130	.....	.....	1,960	.....	.....	6,010	.....	.....
Boston,.....	3,020	5 25	1.74	3,000	\$5 00	1.67	1,480	\$4 00	2.70	5,310	\$4 00	0.75
New-York,.....	3,150	5 00	1.60	3,318	4 50	1.35	1,250	3 00	2.40	5,240	4 00	0.76
Philadelphia,.....	3,295	5 50	1.70	3,385	5 00	1.47	1,220	4 00	3.27	5,000	5 00	1.00
Baltimore,.....	3,530	5 75	1.60	3,620	6 00	1.65	1,215	5 00	4.11	5,000	6 00	1.20
Richmond,.....	3,395	6 00	1.70	3,485	6 00	1.72	1,170	5 50	4.70	5,000	6 00	1.20
New Orleans,.....	4,755	7 50	1.60	4,845	7 50	1.54	595	4 00	6.72	6,555	7 00	1.06

* The rates of freight specified may be considered (they are as far as can be ascertained) a fair average freight of vessel's capacity for the past three years. To Rio Janeiro the freights are low proportionately, as the return freights are generally good.

Table of the cost of transport per ton per mile.

Ocean, long voyage,.....	1.5 mills.
do short do	2 to 6 do
Lakes, long do	2 do
do short do	3 to 4 do
Rivers, Hudson and of similar character,.....	2.5 do
do St. Lawrence and Mississippi,.....	3 do
do tributaries of do	5 to 10 do
Canals, Erie enlargement,.....	4 do
do other large but shorter,	5 to 6 do
do ordinary size,.....	5 do
do do with great lockage,.....	6 to 8 do
Railroads transporting coal,.....	6 to 10 do
do not for coal, favorable lines and grades,.	12.5 do
do do steep grades, &c.,.....	15 to 20 do

In the appendix marked E will be found details of the cost of transportation by the several modes of conveyance above stated, and also of the charges therefor.

In the appendix marked F will be found a table of the distances on each route from certain points in the interior to the Atlantic ports, and the modes of conveyance and cost, based upon the foregoing statements. These tables show that the cost per ton from the eastern end of Lake Erie, by the several routes, is as follows :

1st. By Welland canal, Lake Ontario, and Oswego and Erie canals enlarged, and Hudson river,*	\$2 43
2d. " Erie canal enlarged and Hudson river, to New-York, ..	2 52
3d. " the Canadian canals and the St. Lawrence, to Quebec, ..	2 58
4th. " " Welland canal, Lake Ontario, the Oswego and Erie canals, and the Hudson river, to New-York, ..	2 94
5th. " the Erie canal and the Hudson, to New-York,	3 16
6th. " " Welland canal, Lake Ontario, St. Lawrence, proposed Caughnawaga canal, Champlain lake and canal, and the Hudson, to New-York,	3 43

* To the cost of the movement, in each of the above cases, has been added a price per ton, which would, on a movement of two millions of tons per annum, pay the annual cost of maintenance and interest at 7 per cent on the cost of the artificial works through which the several routes pass. In the case of the enlargement of the Erie canal, the movement is taken at four millions of tons, in consequence of its greater capacity.

7th. By the New-York central railroads and the Hudson, ..	\$6 19
8th. " " Welland canal, Lake Ontario, the Ogdensburgh, Vermont and Massachusetts railroads,	8 02
9th. " the New-York southern railroad to New-York,	8 43

It appears, therefore, that after the Erie canal is enlarged, it will be the cheapest channel of conveyance from Lake Erie to the Atlantic, but there is now a difference in the cost of transportation in favor of the Canadian canals to Quebec.

The cost per ton from New-York by the Erie canal, Lake Erie to Cleveland, and the Ohio canals to Beaver, is \$4.77.

The same from New-York to Cleveland, and the Ohio canal to Portsmouth, is \$5.97; or by way of Beaver and Ohio river, is \$5.85.

The same from New-York to Toledo and the Ohio canal to Cincinnati, is \$5.82.

The same from New-York to Toledo and the Indiana canal to Evansville, is \$6.99.

The cost from New-York, by the Erie canal and the great lakes, to Chicago, thence to Peru, and the Illinois and Mississippi rivers to St. Louis, is \$7.09, and to Cairo is \$7.61.

The cost per ton from the capes of the Delaware, through the Delaware and Chesapeake, and the Pennsylvania canals, Portage railroad and Ohio river to Beaver, is \$4.59; to Portsmouth, \$5.67; to Cincinnati, \$5.98; to Evansville, \$6.96; to Cairo, \$7.54.

The same from the capes of the Delaware by Philadelphia, the Union canal and to Beaver, as before, is \$4.31; to Portsmouth, \$5.39; to Cincinnati, \$5.70; to Evansville, \$6.68; to Cairo, \$7.26.

The cost per ton from the capes of Virginia to Baltimore, and thence by the Baltimore and Ohio railroad to Wheeling, is \$6.99.

The cost per ton from the capes of Virginia to Richmond, thence by the James River canal and the Kanawha and Ohio rivers to Portsmouth, is \$4.11; Cincinnati, \$4.42; Evansville, \$5.40; Cairo, \$5.98.

The cost per ton from St. Louis to New Orleans, including the extra cost of drayage and shipment at New Orleans, is \$6.89.

From the above statement it will be seen that the Pennsylvania canals reach the Ohio river at Beaver and Portsmouth 46 cents per ton cheaper than the New-York and Ohio canals—Cincinnati, Evansville and Cairo, 12 cents cheaper.

The Virginia canal, when completed, will reach the Ohio river at Portsmouth \$1.74 per ton cheaper than the New-York and Ohio canals; and Cincinnati, Evansville and Cairo, \$1.40 cheaper.

The dividing line of trade between the Pennsylvania and New-York canals, is 46 miles north of Beaver and Portsmouth, and 12 miles north of Cincinnati and Evansville; but when the enlargement of the Erie canal is completed, the dividing line of trade, in accordance with the same principles, will be extended to the Ohio, and for a distance of 30 miles up the river from Beaver (say to Pittsburgh), and embrace all of the trade of the Ohio river below that point, until it is intercepted by the trade which will descend to New Orleans.

The dividing line of trade between the Virginia and New-York canals, when the former and the enlargement of the Erie canal are completed, will be 110 miles north of Portsmouth and Cincinnati.

The dividing line of trade between New Orleans and the New-York canals, is now above the mouth of the Illinois river; but when the Erie canal is enlarged it will be extended to the Mississippi, at least as far down as St. Louis.

The completion of the enlargement of the Erie canal will reduce the expense of transportation about seventy-five cents per ton, which is equivalent to extending the area of its drainage of trade 250 miles on a river similar to the Ohio; 150 miles on an ordinary canal; 50 miles on a railroad, and 5 to 7 miles on common roads where these distances are not met by competing lines, and one-half of those distances where they are so met.

The southern line of the trade drainage of the New-York canals is about one thousand miles long; the increased area of this drainage, which would be caused by the enlargement, would be equal

to one-half of either of the north-western states, and embrace a belt of the most productive lands in four of those states.

A reduction in the cost of transport through the Erie canal, such as that which will be produced by its enlargement, will also increase the amount of trade within the present drainage, by permitting the exportation of many articles of large bulk and small value which are restrained at the present time by the cost of transportation.

The accompanying map shows the routes of the channels of trade which have been above discussed, and also the districts affording the trade of these several channels.

The whole area of the district, the trade of which concentrates at the eastern end of Lake Erie, is equal to 330,000 square miles.

In the appendix, marked G, will be found tables furnishing the statistics of this trade and other interesting details which the reports from the officers of the State do not furnish. These tables have been prepared from the reports of the Canadian Board of Works, from Mr. Andrews' recent report to the Secretary of the Treasury, and from official and other sources.

These tables show that the seven north-western states and Canada West, contain a population of over six millions, an area of over four hundred thousand square miles, and that their annual agricultural and animal products exceed 15 millions of tons.

The commerce of the western lakes alone is now valued at over three hundred millions of dollars, and annually employs eighty thousand tons of steam and one hundred and forty thousand tons of sail vessels.

The amount of flour and grain transported on the lakes in 1851, was of flour, two millions of barrels; of wheat, eight millions of bushels; of corn, seven millions; and oats and barley, two millions, making an aggregate of over twenty-seven millions of bushels of cereal produce.

The whole exports of the same articles from the United States in 1851, were but little more than half of the above amount.

The exports of the same articles from the city of New-York in each of the years 1851 and 1852, were about one-third of that transported on the lakes.

The value of the trade with Canada west is shown by tables H.

The exports of flour and wheat from Canada to and through Buffalo and Oswego in 1850 and 1851, were :

In 1850, flour, 280,116 barrels ; wheat, 1,160,415 bushels.

“ 1851, “ 270,735 “ “ 771,857 “

The tolls received by the State of New-York from Canadian produce, and property passing through her canals, is estimated at over \$300,000 annually.

Tables I show the movement of the tonnage on the St. Lawrence and Welland canals for 1850 and 1851, and of the latter for 1852. The increase of tonnage in 1851 over 1850 is more than fifty per cent on each of these works.

The tonnage transported on the Welland canal in 1851 was about fifty per cent more than that transported on the St. Lawrence canal ; this excess is made up in part by about four millions of bushels of wheat, corn and flour, which were sent chiefly to Oswego and Ogdensburgh, and by about fifty thousand tons of iron (chiefly railroad iron), which was sent from New-York by the way of the Oswego and Welland canals.

The Canadian canals have already diverted a considerable amount of business from the canals of this State.

The Welland canal has turned a large trade from Lake Erie into Lake Ontario. A portion of which is again received at Oswego ; but a considerable amount has passed down to Ogdensburgh and below that point, and has been lost to our canals.

The Ogdensburgh railroad has carried 97,395 tons of through freight eastward, and 18,813 tons westward the last year. The character of the freight thus transported will be seen in table K.

The connections which this road has with nearly all of the interior roads in New England, makes this a desirable route for such articles as flour, &c., which are required for consumption in the interior of those states. This would appear from the fact, that

the imports into Boston in 1852 by railroads and by water, show a falling off of over three millions of bushels of flour and corn since 1848. These imports are given in table L.

The comparative cost of transportation by canals and railroads, requires, perhaps, a more extended investigation than has been given to it in the preceding pages, and this is the more necessary as there is an erroneous impression that railroads may soon become important rivals to the Erie canal, and eventually supersede it in the transportation of the most important articles of freight.

For the purpose of making this comparison it is necessary to ascertain in each case ; 1. The capacity and expense of construction and maintainance ; 2. The proportion of the cargo to the whole weight moved and the expense of the movement.

1. The original cost of the Erie canal was \$7,143,477, being \$19,679 per mile.

The annual expense of repairs for the last ten years has averaged \$984.20 per mile, and for the preceding ten years about \$725 per mile.

The capacity of the Erie canal before it received the advantages of the improvements by its partial enlargement, was one and a half millions of tons per annum.

The average weight of the boat is,..... 30 tons.

“ “ “ “ down cargo is,..... 70 “

“ “ capacity of largest class of boats is, 90 “

The proportion between the cargo and the whole weight moved is 1 to 1.43 ; and between the capacity of the boat and the whole weight is as 1 to 1.33.

The expense of running, towing and horse power is $2\frac{1}{2}$ mills per ton per mile.

The cost of the enlarged canal with double locks may be taken at twenty-eight and one-half millions of dollars, being \$80,736 per mile.

The annual expenses of repairs are estimated at \$700 per mile.

The capacity will be at least seven millions of tons per annum.

The proportion between the cargo and the whole weight is as 1 to 1.2.

The expense of running, towing and horse power, will be $1\frac{1}{2}$ mills per ton per mile.

The cost, exclusive of equipment, &c., of the central line of railroads from Buffalo to Albany is fourteen millions of dollars, and adding the cost of completing a double track would amount to about twenty millions, or \$60,000 per mile.

The annual expense of repairs of roadway for the last two years has averaged \$600 per mile.

In the report of my predecessor for 1851, he makes the following remarks on the capacity of railroads to perform the business of the Erie canal.

“In order more fully to impress upon the mind the present magnitude of the canal trade, and the capacity of the canal when enlarged, let us imagine its business transferred to a railroad.

“The tons arriving at tide water last year were 2,033,863, all performed in the space of 226 days. A railroad operated six days in the week will have 313 working days in a year. If the above business should be divided equally throughout the year, then the arrival at tide water would be 6,498 tons daily. Average loads of 100 tons of freight per train would require the arrival daily of 65 trains, equal to *one train every twenty-two minutes throughout the twenty-four hours*. A railroad performing a large passenger and fast freight business, and having a double track with usual turn outs, could not, I suppose, perform one-sixth of the above *as additional business*, by slow trains, even admitting that the variations of trade at different seasons of the year could, by increased loads, be accommodated by the number of trains stated. In other words it would require six double track railroads, having other traffic from which to earn dividends, to perform the business of the Erie canal during the past year, and some 8 or 10 to do the business which the enlargement can command. The above business would require an outfit of at least 10,000 cars and 400 engines,

costing say \$9,000,000, and if confined to one road would require the daily arrival of 4½ miles of trains to be unloaded, loaded and sent back, supposing that each train and *each* car should be fully loaded.

“All the railroads now built and in *process of construction* to connect Baltimore, Philadelphia, New-York and Boston with the west, would be over burdened with business, if freights equal in amount to that of the Erie canal should be thrown upon them.”

This estimate would give for a double track railroad from Buffalo to Albany a capacity of about 340,000 tons per annum.

The Reading railroad transported in each of the years 1851 and 1852, about two millions of tons over a double track; this is, however, a short road (92 miles in length) and three-fourths of its tonnage was coal.

The regularity of this description of freight, the remarkable convenience with which it is handled, the favorable grades (being in the direction of the trade), causes this great increase in the capacity of the road.

The capacity of a double track railroad from Buffalo to Albany used exclusively for freight could not be estimated at more than one and a half million tons per annum. The proportion between the freight and the whole weight moved would be as 1 to 1.7.

The average expense of operating the central line of roads in 1852 was 8½ mills per ton per mile, and of the New-York and Erie and the Northern roads was 7 mills. On the Reading road for 1851 it was 4½ mills for transporting coal.

The expense of operating a railroad may be taken at 6 mills per ton per mile.

An abstract of the preceeding statements is as follows:

	Erie canal.	Enlarged do.	Railroad.
Capacity for transport of freight,			
tons	1,500,000	7,000,000	1,500,000
Cost per mile for construction,			
dollars,.....	19,679	80,736	60,000

	Erie canal.	Enlarged do.	Railroad.
Cost per mile for repairs, dollars,	900	700	600
“ ton for movement,			
mills;	2 $\frac{1}{2}$	1 $\frac{3}{4}$	6
Ratio between cargo and whole			
weight,	1 to 1.43	1 to 1.2	1 to 1.7

The relative cost of a railroad and its capacity to perform the freighting business now done on the Erie canal, can be arrived at with considerable accuracy by comparing the business done on the New-York and Erie railroad during the past season with that of the Erie canal.

The former fully equipped and performing an immense business under the advantages of an economical system of private management, and the latter under the more costly and less efficient direction of the State government. The Erie railroad has done a mixed business of passengers and freight. The movement of the latter is 406,460 tons, or 96,697,695 tons moved one mile.

The distance travelled by the freight, in proportion to the passenger trains, is as 13 to 10. It may, therefore, be assumed that if the business of the road had been confined exclusively to freight, it would have transported an increased amount in the proportion of 13 to 10, equal to 312,661 tons, or a total of 719,121 tons.

As the railroad is one-fifth longer than the canal, this movement may be increased to 800,000 tons, or 200,000,000 tons moved one mile.

The movement on the Erie canal a little exceeds three millions of tons, or five hundred and fifty millions of tons moved one mile.

The proportion of business done by the railroad is to that done by the canal, as one to two and one-half.

The present cost of the road and equipment is \$27,551,205.71. The comparative cost of a similar road of the length of the Erie canal would be twenty-two millions of dollars.

The present cost of the Erie canal, deducting that portion of the expenditure for its enlargement, which has not materially

increased its capacity, and adding for the cost of the boats, horses, &c., &c., to equip it in the same manner as the railroad, is seventeen millions of dollars.

The comparative cost of the railroad and canal would then be as 1 to 0.77.

When a double track is completed on the Erie railroad (allowing for the decrease in length), its capacity will be increased to one and a half millions of tons, and its cost to thirty millions of dollars.

Two such roads would be required to perform the business now done on the canal, and they would cost upon the principles before stated, fifty millions of dollars.

The proportion of the cost of the canal to that of the railroad would then be nearly as 3 to 1.

The capacity of the Erie canal, when enlarged, will be seven millions of tons, and the cost, including that of the old canal and the equipment, with boats and horses, will be forty-six millions of dollars.

A railroad to perform this business would require nine tracks, and would cost nearly one hundred and twenty millions of dollars.

It should be remembered that the business on the canal is confined to seven months, and the great bulk of it is done in five, so that the duration of this business may be taken at one-half of the year, while the railroad has the whole year to perform its business in.

The other main avenues of trade leading to both works are closed for the same length of time as the canal, consequently it would be perfectly fair in making the above comparisons to reduce the duty of the railroad at least one-third in each of the cases stated.

The comparisons above made are, however, deemed sufficient to show that the cost of a railroad to perform either the present or anticipated business of the canal, would increase the tax upon its trade to repay its interest and maintenance so much as to turn it into other channels.

In extending the comparison of the business of the Erie canal with the central railroads, for the purpose of determining the effect of one upon the other, the following facts are cited, and the following inferences drawn :

In 1848, the canal tonnage

was 2,796,230; railroads 56,249, or as 50 to 1

1849, do do do .. 2,894,732 do 81,676, or as 35 to 1

1850, do do do... 3,076,617 do 113,812, or as 27 to 1

1851, do do do... 3,582,733 do 134,706, or as 27 to 1*

Total for four years,....12,350,312 do 386,443, or as 32 to 1

In 1852 the canal tonnage was 3,863,441

Table N of the appendix shows the increase from year to year of freighting business on the railroads extending from Albany to Utica, over which must pass all the through down freight and a great bulk of the way freight, to be as follows, viz :

Albany and Schenectady increase of 1850 over 1849, is 22 per cent increase ; 1851 over '50, is 46 per cent ; and '52 over '51, is 76 per cent.

Utica and Schenectady increase of 1850 over 1849, is 269 per cent ; 1851 over 1850, is 17 per cent ; and '52 over '51, is 64 per cent.

From the above facts it appears that for the same time the increase in the tonnage of the canals in 1850 over 1849, was 6 per cent ; 1851 over 1850, was 16 per cent ; and 1852 over 1851, was 8 per cent.

It is also shown that the proportion of canal to railroad tonnage varied from 50 to 1 for the year 1848, to 24 to 1 for the year 1851.

It is therefore evident that the tonnage of both the canals and railroads has *increased* from year to year, but that it has been very irregular, and also, that the increase of traffic on the railroad, has not diminished the business of the canals.

* In the return of railroad tonnage for 1851, the doings of the month of December are not included, as the several companies were exempted from the payment of toll during that month. But I have estimated the total for the year at 150,000 tons, which gives the proportion of 24 to 1,

An inspection of table M shows that of the articles of fur and peltry, live stock, pork in the hog, cheese, butter, wool, hides, peas and beans, dried fruit, cotton, hemp, grass and clover seed, hops, domestic spirits, leather and furniture, domestic woolens and cottons, and oysters and clams, there were transported upon the canals for the four years named, 311,518 tons, and upon the railroads, 131,871 tons—a proportion of 2.36 to 1, while the proportion for the whole tonnage is as 32 to 1.

The value of the first named quantity was \$68,491,776, and that of the latter, \$32,783,161, showing a value of that carried on the canals of \$219.86 per ton, and that upon the railroads of \$248.60 per ton.

Of the articles, boards and scantling, shingles, timber, staves, wood, lard, lard oil, tallow, flour, wheat, rye, corn, corn meal, barley, oats, other grain, bran and ship stuffs, potatoes, beer, linseed oil, oil cake, starch, agricultural implements, iron, machines and salt, there were transported upon the canals for the four years named, 9,172,995 tons, and upon the railroads, 84,614 tons—a proportion of 108.4 to 1, while the proportion for the whole tonnage is as 32 to 1.

The value of the first named quantity was \$165,720,693, and that of the latter, \$2,983,837, showing a value per ton of that carried upon the canals of \$18.06, and that carried upon the railroads of \$35.26.

Of all the other articles named in the table, there were transported by the canals, 2,357,902 tons, and upon the railroads, 143,444 tons; having values of \$215,330,638 and \$28,203,109, or \$91.32 and \$196.61 per ton, respectively.

By careful inspection of the table referred to, it appears that the following causes transfer the carriage of freight to railroads running parallel to and adjoining the State canals, even during the time the former was subject to the payment of the same tolls as were charged upon the canals.

First.—The entire suspension of navigation for a period averaging about five months in each year.

Second.—The fluctuating price and demand in market for such articles as butter, cheese, live cattle, sheep and hogs, which require the most speedy means of transit to prevent the loss of weight, quality and value, while undergoing transportation.

Third.—The transportation of articles of such value and great bulk as fur and peltry, wool, hops, furniture and domestic woollens and cottons, for which the railroad is better adapted than the canal, by reason of the much greater proportion of room to tonnage in the freight car than in a canal boat,* and the less time occupied by railroad trains in bringing these commodities (which are easily handled) to market; an object, in itself, sufficient to induce the consumer or manufacturer to pay the extra cost of railroad transportation.

Fourth.—Western merchants who obtain the whole of their stock in New-York, can afford to pay the extra cost of railroad transportation on light merchandize, and thereby compete with those who purchase in nearer but more expensive markets. The cheaper mode of transport. canal navigation, at the same time affords the means of delivering heavy goods at a less expense than by the southern routes, but occupies a longer time.

In addition to these causes, it may be added that the most convincing proof of the performance of the respective duties of the two great channels of trade as above stated, is shown by the average value of the articles transported upon each: that upon canals being for the four years before named \$48.68 per ton, and upon the railroads \$227.41.

Thus the conclusions are arrived at, that those products and articles which are now profitably transported over the railroads, could not in most instances be moved upon the canal without

*The average capacity of a freight car designed for carrying 8 tons, is 259.75 cubic feet per ton, and of the present largest class canal boats, intended to carry 90 tons, is 59.6 cubic feet per ton, and for boats on the enlarged canal, is 32.4 cubic feet per ton.

serious loss to the owner or producer ; and that the diversion of this business from our navigable channels has served to augment the legitimate business of the Erie canal.

Also that with few exceptions the railroads never have possessed, nor can at any future period possess the capacity and cheapness of transport, adequate for the withdrawal from the canals of the vast and increasing duty in the conveyance of the heavy products from the western lakes to tide water.

An inspection of table R of the appendix, which shows the tons of all articles delivered at tide water by the canals and railroads during the years 1848 to 1851 inclusive, will fully sustain the views expressed in the foregoing pages.

In the appendix O will be found the proportion between the weight of the cargo and the weight of the vessel on boats navigating the lakes and the Erie canal, and the dimensions, cost and capacity of the principal canals in the United States ; also, the cost and the greatest amount of business done on the leading railroads in the United States.

The average cost of the principal canals has been as follows :

Of New-York,	513 miles,	\$24,150 per mile.	
" Pennsylvania,	643 "	26,100 "	"
" New Jersey,.....	144 "	41,300 "	"
" Delaware and Md.,...	204½ "	62,350 "	"
" Virginia,.....	147 "	34,150 "	"
" Ohio,	646 "	16,600 "	"
" Indiana,.....	379 "	33,968 "	"
" Illinois,	102 "	84,816 "	"
" Canada,	89½ "	155,300 "	"

The average cost of the whole 2,579 miles being about \$35,000 per mile.

The amount expended on the canals of the United States is about one hundred and fifty millions.

The average cost of railroads has been as follows :

30	roads in New-York	costing \$80,000,000,	\$46,344	83	per mile.
38	“ Mass.	“ 60,000,000,	44,482	11	“
12	“ South'n & West'n “	50,000,000,	45,653	89	“

The number of railroads, including branches, now in progress in the United States is 372. The miles in operation are 13,586 ; the miles in progress, 10,828 ; and the amount now expended is four hundred millions of dollars, the average cost being about \$30,000 per mile.

In the preceding pages the comparative value of railroads and canals for the transportation of freight has been discussed, and the superiority of the latter maintained, yet it has been no part of my object to undervalue the former.

The canals of New-York, with one exception, have been constructed by the State. The railroads have been built by incorporated companies. The object of the State expenditure was to accommodate trade and commerce ; that of the corporations to receive a profitable return for their investments. The former has proved to be a profitable investment, and the latter has resulted in furnishing great facilities to the business of the State, and thus each in accomplishing the object proposed by itself has also accomplished the object aimed at by the other, and both have promoted the public good.

Railroads and canals have each their appropriate function to perform, and they each add to the business of the other.

The facility for the cheap transport of the vast business between the east and the west creates a necessity for the means of rapid communication between the owners. The canals are appropriate for the one, and the railroads for the other.

It has been no part of my present object to discuss the propriety of any of the financial schemes which have been suggested for accomplishing the “speedy enlargement” of the canals. That duty belongs to the financial officers of the government. I have endeavored to show that the State of New-York occupied a

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position which enabled her to command the trade of the Northwest; that the enlargement of the Erie canal is necessary to cheapen transport and to preserve to her her present advantages, and that it will also increase this trade to an extent that will remunerate the expense of its completion.

Respectfully submitted,

WM. J. McALPINE,
State Engineer and Surveyor.

TABLE A.

Tabular statement of engineering expenses on the eastern subdivision of the eastern division of the enlargement of the Erie Canal for the year 1852.

Names.	Rank or Station.	No. of days.	Price per year.	Amount.	Total.
J. P. Goodsell,.....	Resident engineer,.....	137	\$1,500	\$562 50	
do	Travel,.....	...	.....	220 41	
Francis F. Curry,.....	Resident engineer,.....	1 mo.	1,500	125 00	
do	Travel,.....	...	.....	100 00	
Francis A. Utter,.....	1st assistant,	182	3 50	637 50	
George E. Gray,.....	do	78	3 50	273 00	
Henry Ramsay,.....	do	255	3 50	892 50	
William A. Perkins,.....	do	108	3 50	378 00	
do	Travel, .....	...	.....	16 77	
Thomas Goodsell, jr.,....	2d assistant,	169	2 50	422 50	
John W. Murphy,	do	200	2 50	500 00	
Ogden Edwards,.....	do	103	2 50	257 50	
do	Travel,.....	...	.....	55 00	
James Green,.....	2d assistant,	104	2 50	260 00	
A. M. Peek,.....	do	27	2 50	67 50	
do	Draughtsman,.....	24	2 25	54 00	
do	Clerk,	74	2 00	148 00	
F. J. Starin,.....	2d assistant,.....	91	2 50	227 50	
do	Leveller,	145	2 00	290 00	
Peregrin White,.....	2d assistant,.....	230	2 50	575 00	
do	Leveller,	20	2 00	40 00	
Luther S. Nash,.....	2d assistant,.....	220	2 50	550 00	

TABULAR STATEMENT—(CONTINUED.)

Names.	Rank or Station.	No. of days.	Price per day.	Amount.	Total.
David Vaughan,.....	Draughtsman,.....	235 $\frac{3}{4}$	\$2 50	\$589 00	
Thomas E. Homer,.....	do	38	2 00	76 00	
James Rich,.....	do	37	2 50	92 50	
Joseph L. Harris,.....	do	27	2 50	67 50	
do	do and clerk,.....	73	2 50	182 50	
do	do do	16	2 00	32 00	
William Pitt,.....	do	118	2 50	295 00	
Auguste Plinta,.....	do	232 $\frac{1}{2}$	2 50	578 75	
Thomas A. Emmett,.....	Leveller,	99 $\frac{1}{2}$	2 00	199 00	
William B. Cooper,.....	do	168	2 00	336 00	
do	do	24	1 75	42 00	
do	Rodman,	27	1 50	40 50	
Joel Gray, Jr.,.....	Leveller,	27	2 00	54 00	
do	Office assistant,.....	31	1 50	46 50	
Antil Remenyi,.....	Leveller,	51	1 75	89 25	
do	do	138	2 00	276 00	
E. H. Ball,	do	236	2 00	472 00	
do	do	24	1 75	42 00	
do	Assistant leveller,.....	27	1 75	47 25	
do	Rodman,.....	27	1 50	40 50	
Russell D. Shephard,....	Assistant leveller,.....	196	1 75	343 00	
do do	Rodman,	20	1 50	30 00	
Lewis B. Martin,	Assistant leveller,....	236	1 75	407 00	
do	Office assistant,....	58	1 50	87 00	
James W. Bradshaw,....	Assistant leveller,.....	174	1 75	304 50	

do	do	....	Rodman,	25	1 50	37 50
do	do	....	Office assistant,	27	1 50	40 50
do	do	....	Tapeman,	24	1 25	30 00
Joseph Steele,			Rodman,	51	1 50	76 50
Thomas W. Spencer,			do	57	1 50	85 50
Henry J. Bushnell,			do	57	1 50	85 50
David Deforest,			do	78	1 50	117 50
C. M. Sanders,			do	28	1 50	42 00
do do			Chainman,	27	1 25	33 75
Edmund Marcy,			Rodman,	74	1 50	111 00
do			Tapeman,	24	1 25	30 00
do			Clerk,	27	1 25	38 75
E. W. Noyes,			Rodman,	262 $\frac{1}{2}$	1 50	393 75
do do			Clerk,	24	1 50	36 00
do do			do	27	1 25	33 75
D. S. Olmsted,			Rodman,	67	1 50	100 50
Morris M. Francis,			do	236	1 50	354 00
do			Tapeman and chainman,	78	1 25	97 50
E. H. Putnam,			Rodman,	203	1 50	304 50
do			Tapeman,	20	1 25	25 00
John W. Cady,			Rodman,	32	1 50	48 00
J. A. Barhydt,			do	111	1 50	166 00
J. A. Becker,			Chainman,	27	1 00	27 00
do			Tapeman,	23	0 75	17 25
do			do	260 $\frac{1}{2}$	1 25	325 62
Charles J. Rogers,			Tapeman and chainman,	117	1 25	146 25
Edward P. Sing,			do	150	1 25	187 50

TABULAR STATEMENT—(CONTINUED.)

Names.	Rank or Station.	No. of days.	Price per day.	Amount.	Total.
Bradford Scouten,.....	Tapeman and chainman,.....	27	\$1 25	\$33 75	
do	Tapeman,.....	....	....	67 49	
E. A. Burnham,.....	Travel allowed by Canal board,.....	94	0 75	70 50	
E. M. Jenkins,.....	do	236	1 25	295 00	
Henry C. Day,.....	do	211	1 25	263 75	
Artimas DeLong,.....	do	196	1 25	245 00	
John M. Mead,.....	Chainman,.....	13	1 12 $\frac{1}{2}$	14 63	
John M. Keith,.....	do	57	1 12 $\frac{1}{2}$	64 13	
Benjamin H. Knight,....	Axeman,.....	3 $\frac{1}{2}$	1 00	3 50	
Abram W. Mereness,....	do	111	1 00	111 00	
Michael Ryan,.....	do	29	1 00	29 00	
F. E. Peck,.....	do	57	1 00	57 00	
John Wiley,.....	do	58	1 00	58 00	
David Van Alstyne,....	do	25	1 00	25 00	
Fitz Allen Flynn,.....	do	217	1 00	217 00	
Henry Hose, Jr.,.....	do	12	1 00	12 00	
Henry W. Manning,....	do	139 $\frac{1}{2}$	1 00	139 33	
S. R. C. Mathews,.....	do	106 $\frac{3}{4}$	1 00	106 75	
Abram Gillespie,.....	do	84	1 00	84 00	
Peter Brumagem,.....	do	1	1 00	1 00	
A. Van Slyck,.....	do	1	1 00	1 00	
Peter McFarlan,.....	do	1	1 00	1 00	
P. E. Sickler,.....	Clerk,.....	232	2 00	464 00	
do	Rodman,.....	27	1 50	40 50	
Duncan Campbell,.....	Clerk,.....	135	2 00	270 00	

J. A. Dombrowski,.....	do	.....	27	2 50	67 50
John Vandemark,.....	do	.....	24	2 00	48 00
B. W. Sammons,.....	do	.....	54	1 50	81 00
Waldo Abeel,.....	do	.....	51	2 00	102 00
W. Wight,	do	.....	51	2 00	102 00
A. S. Cassidy,.....	do	.....	2	2 00	4 00
J. C. Schermehorn,.....	do	.....	2	2 00	4 00
Alexander Main,.....	do	during canvass of 1851,.....	35	2 00	70 00
do	do	do do	7	3 00	21 00
do	do	on report of 1851,.....	1 month.	\$750 per y'r.	62 50
B. S. Van Rensselaer,...	do	during canvass of 1851,.....	35	2 00	70 00
do ...	do	do do	7	3 00	21 00
Robt. A. Fitzgerald,	Inspector,.....	.....	41	2 00	82 00
do	do .....	.....	183	1 50	274 50
do	Tapeman,.....	.....	54	1-25	67 50
Joseph Boyer,.....	Inspector,.....	.....	27	2 00	54 00
A. C. Piercy,.....	do .....	.....	57	2 00	114 00
James Cashin,.....	do .....	.....	105	2 00	210 00
Solomon B. King,.....	do .....	.....	239	2 00	478 00
David G. Mallory,.....	do .....	.....	27	2 00	54 00
John O'Hara,.....	do .....	.....	59	2 00	118 00
Elish Brown,.....	do .....	.....	225	2 00	450 00
Hugh Stewart,.....	do .....	.....	84 $\frac{1}{2}$	2 00	169 00
Benjamin Bradley,.....	do .....	.....	55	2 00	110 00
Lewis J. Barhydt,.....	do .....	.....	229	2 00	458 00
James Stewart,.....	do .....	.....	181	2 00	362 00

TABULAR STATEMENT—(CONTINUED.)

Names.	Rank or Station.	No. of days.	Price per day.	Amount.	Total.
John Hitchcock,.....	Superintendent of the dredging of } Albany Basin, }	54 90	\$2 00 3 00	\$108 00 270 00	
Total expenses for engineering,.....				<u> </u>	\$21,114 88
Light,				\$204 53	
Fuel,.....				93 53	
Expenses,.....				23 43	
Rent,.....				311 04	
Watching banks of new canal,.....				132 50	
Postage,.....				112 48	
Digging test pits and setting monuments,.....				137 26	
Stationery,.....				466 40	
Telegraph,.....				57 44	
Miscellaneous,.....				418 05	
				<u> </u>	\$1,956 66
Total,.....					<u>\$23,071 54</u>
The above amount was expended as follows:					
By J. P. Goodsell,.....				\$11,951 99	
" F. F. Curry,.....				11,116 55	
				<u> </u>	\$23,071 54

TABULAR STATEMENT

Of engineering expenses on the Western subdivision of the Eastern Division, for the year 1852.

Names.	Rank or Station.	No. of days	Price per year.	Amounts.	Total
Daniel C. Jenne, resid't eng'r, 1 mo.,			\$1,500 00	\$125 00	
Travel,				32 34	
Francis F. Curry, resid't eng'r, 5½ mos.			1,500 00	687 50	
Travel,				421 08	
			per day.		
William B. Taylor, 1st assistant,		75	3 50	262 50	
Lorain L. Nichols, do		273	3 50	955 50	
Octave Blanc,.... do		95	3 50	332 50	
Travel,				3 00	
Hiram M. Joslin, 2d assistant,		175	2 50	437 50	
Job P. Whipple, do		57	2 50	142 50	
Harvy Park, Jr., do		171	2 50	427 50	
John L. Dodge, do		287	2 50	717 50	
do leveller,		27	2 00	54 00	
Egbert Bagg,.... do		260	2 00	520 00	
George B. Beach, ass't do		28	1 75	49 00	
G. M. Barnes,.... do do		51	1 75	89 25	
D. M. Green,.... do do		79	1 75	138 25	
do chainman,		14	1 25	17 50	
do tapeman,		78	1 25	97 50	
John M. Whipple, draughtsman,		2	2 00	4 00	
G. C. Hathaway, surveyor and draughtsman,		75	2 00	150 00	
W. B. Peggs, rodman,		58	1 25	72 50	
W. M. S. Riley, do		51	1 25	63 75	
do chainman,		27	1 25	33 75	
do tapeman,		13	1 25	16 25	
J. W. Lennebacker, rodman,		103	1 50	154 50	
do tape'n & ch'n,		131	1 25	163 75	
J. R. Parsons,.... rodman,		75	1 50	112 50	
G. L. Judd,..... do		230	1 50	345 00	
Henry Baker, do		224	1 50	336 00	
I do		206	1 50	309 00	

Names.	Rank or Station.	No. of days.	Price per day.	Amounts.	Total.
F. K. Field,.....	rodman,	79	\$1 50	\$118 50	
do	ass't leveller,	79	1 75	138 25	
do	ch'n & tape'n,	96	1 25	120 00	
W. S. Abeel,.....	do do	54	1 25	67 50	
Richard Marcy,...	do do	51	1 25	63 75	
do	axeman,	1	1 00	1 00	
James Brewer,....	do	6	1 00	6 00	
Ira S. Earl,	do	2	1 00	2 00	
George W. Chase,.	do	15	1 00	15 00	
Asher Linscott,...	do	262	1 00	262 00	
S. M. Brooks,.....	do	47	1 00	47 00	
Chester Hayden,..	do	72	1 00	72 00	
Edwin McSerley,.	do	32	1 00	32 00	
David W. Briggs,.	inspector,	242½	2 00	485 00	
Thomas Dugan,...	do	41½	1 50	62 25	
Henry S. White,...	clerk,	18	1 25	22 50	
Total for engineering,.....				\$8,781 67	
Stationery,				\$121 01	
Fuel,.....				76 63	
Light,				57 35	
Rent,.....				182 50	
Postage,.....				38 68	
Telegraph,				14 77	
Express,.....				30 88	
Miscellaneous,				128 40	
				<hr/>	650 22
Total,.....				\$9,435 89	
<hr/>					
The above amount was expended as follows :					
By D. C. Jenne,.....				\$1,562 80	
By F. F. Curry,.....				7,873 09	
				<hr/>	\$9,435 89
<hr/>					
<i>Summary.</i>					
Eastern subdivision,.....				\$23,071 54	
Western do				9,435 89	
				<hr/>	
Total of eastern division,.....				\$32,507 43	
<hr/>					

EXPENDITURE

Of the Engineer Department on the eastern subdivision of the middle division of the enlargement of the Erie canal, from the first day of January, 1852, to the first day of January, 1853, O. C. HARTWELL, resident engineer.

Name.	Rank or station.	Time. Days.	Rate of com'p. per year.	Amounts.	Totals.
L. L. Nichols, resid't eng'r,		47	\$1,500	\$193 15	
do do travel,				47 52	
O. C. Hartwell, resid't eng'r,		11 mo.	1,500	1,375 00	
do do travel,				256 50	
John T. Clark, division en- gineer (after date of resignation),		$\frac{1}{2}$ mo.	1,700 per day.	70 83	
O. C. Hartwell, 1st assistant engineer,		27	\$3 50	94 50	
M. C. Fremyre, 1st do		314	3 50	1,099 00	
D. C. Roberts, do do		234	3 50	819 00	
G. S. Backus, 2d do		21	2 50	52 50	
J. M. Trowbridge, 2d do		185	2 50	462 50	
D. R. Hartwell, do do		262	2 50	655 00	
O. H. Bogardus, do do		148	2 50	370 00	
W. S. Nearing, do do		29	2 50	72 50.	
do surveyor, ..		101	2 50	252 50	
S. M. Carpenter, leveller, ..		78	1 25	97 50	
do do do		167	2 00	334 00	
H. D. Brockway, do		15	1 25	18 75	
do do do		135	2 00	270 00	
James Burke, draughtsman,		312	2 00	624 00	
E. G. Nye, clerk,		44	1 50	66 00	
do do		228	2 00	456 00	
P. E. Sickler, do		3	2 00	6 00	
Joseph L. Roades, rodman,		67	1 25	83 75	
do do do		124	1 50	186 00	
F. H. E. Brown, do		63	1 25	78 75	
Charles L. Loomis, do		135	1 50	202 50	
David E. Whitford do		79	1 25	98 75	

Name.	Rank or station.	Time. Days.	Rate or com'p. per year.	Amounts.	Totals.
Cha.'s L. Loomis, tapeman,		69	1 00	\$69 00	
David E. Whitford, do		13	1 00	13 00	
do do do		157	1 25	196 25	
Edward P. Clark, do		29	1 00	29 00	
Dewitt Cunningham, axem'n,		78	1 00	78 00	
do do do		136	1 25	170 00	
Amos Kinne, do		29	1 25	36 25	
James O'Neil, do		28	1 00	28 00	
John Ganswyck, do		141	50	70 50	
do do do		158	1 00	158 00	
Walter Raleigh, do		30½	1 25	38 13	
Granville P. Andrews, do		6	1 00	6 00	
O. F. Cook, overseer,...		21	1 50	31 50	
do do do		105	2 00	210 00	
Malachi Tehan, do		104	1 50	156 00	
W. L. Crosset, do		29	1 50	43 50	
Ross Crandall, do		105	2 00	210 00	
				—————	\$9,885 63

Incidental Expenses.

Stationery, postage, telegraph and express,	\$175 03	
Office rent, fuel and light,.....	227 74	
Labor,	29 00	
Printing,.....	55 00	
Miscellaneous,	18 34	
		————— 505 11
		————— \$10,390 74
		—————

(No. 9.)

STATEMENT

Showing the number and compensation of engineers employed during the year 1852, on the western subdivision of the middle division of the New-York State canals, so far as relates to the Erie canal

WM. B. VEDDER, Resident Engineer.

Name and nature of service.	Time empl'd.	Rate of compen.	Amounts.	Total.
John L. Stephenson, 1st asst. engineer,	311	\$3 50	\$1,088 50	
Daniel Richmond, 1st do	179	3 50	626 50	
Nathan Coryell, 2d do	40	2 50	100 00	
Wm. H. H. Gere, 2d do	125	2 50	312 50	
Ogden Edwards, 2d do	38	2 50	95 00	
Allen C. Archibald, 2d do	81	2 50	202 50	
Luther Eno, leveller,.....	310	2 00	620 00	
Joseph W. Clark, leveller,.....	60	2 00	120 00	
Eden B. Latimer, rodman,.....	77	1 25	96 25	
Daniel W. Thyme, do	78	1 25	97 50	
Robert Hyslop, do	79	1 50	118 50	
Thos. M. Sherman, do	268	1 50	402 00	
F. J. McMaster, jr., do	215	1 50	322 50	
S. P. Sehermerhorn, do	96	1 50	144 00	
James Brown, tapeman,.....	260	1 25	325 00	
Peter L. Hyde, do	210	1 25	262 50	
Geo. W. Robbins, flagman,.....	10	1 12½	11 25	
Daniel W. Thyme, axeman,.....	232	1 25	290 00	
Orrin Marvin, do	68	1 25	85 00	
George Robbins, inspector,.....	75	2 25	168 75	
Caleb Whiting, do	211	2 00	422 00	
Jonathan C. Burnham, inspector,	177	2 00	354 00	
Wm. Burke, draughtman,.....	194	2 00	388 00	
Robert Barnes, elerk,.....	289	1 50	433 50	
do travel fees, .....	.....	.....	4 75	
Chas. W. Wentz, resident engineer,....	1,500 00	pr an.	312 50	
do do travel, .....	.....	.....	143 64	
Wm. B. Vedder, resident engineer,	1,500 00	pr an.	864 70	
do do travel, .....	.....	.....	181 32	
			<u>\$8,592 66</u>	
Carried forward,.....				\$8,592 66

	Amounts.	Total.
Brought forward,.....		\$8,592 66
<i>Incidental expenses.</i>		
Stationery and printing,.....	\$125 70	
Fuel,	50 18	
Light,.....	19 21	
Office rent,	114 50	
Postage and telegraph,	21 74	
Labor,	50	
Miscellaneous,	23 59	
		<hr/> 355 42
		<hr/> \$8,948 08

Summary.

Eastern subdivision,		\$10,390 74
Western do		8,948 08
John T. Clark, division engineer, salary,.....	\$141 66	} 178 89
do do travel,.....	37 23	
Van. R Richmond, do salary,.....	1,558 33	} 1,887 43
do do travel,.....	329 10	
Total for the middle division of E. E. canal,.....		<hr/> \$21,405 14

STATEMENT

Of engineering expenses on the first subdivision of the western division, enlargement of Erie canal, by Daniel Marsh, resident engineer, for the months of January and February, 1852, and by Richard Vernam, resident engineer, from the 1st day of February to the 31st day of December, 1852, inclusive, and by Richard Vernam, resident engineer, in paying accounts of Daniel Marsh, resident engineer, for the month of January, 1852.

Names.	Rank or station.	Days employed.	Rate per annum.	Amount. doll'rs. cts.
Daniel Marsh,....	res. eng'r,	2 mos.,	\$1,500 00	\$250 00
"	.... "	travel,		112 56
Richard Vernam, .	"	11 mos.,	1,500 00	1,375 00
"	"	travel,		401 34
Per day.				
Richard Vernam, .	1st ass't eng'r,	27	3 50	94 50
Ethan C. Clarke, .	"	314	3 50	1,099 00
E. S. Parker,.....	"	308	3 50	1,078 00
B. B. Hart,	"	64	3 50	224 00
A. M. Leach,	"	260	3 50	910 00
R. H. Colburn,...	2d ass't eng'r,	152½	2 50	381 25
C. Q. Newcombe, .	"	51	2 50	127 50
C. G. Voorhies,...	"	314	2 50	785 00
D. H. Ainsworth,	"	75	2 50	187 50
Hathaway Hurd, .	"	51	2 50	127 50
Edward Everett, ..	"	62	2 50	155 00
James A. Case,...	"	62	2 50	155 00
J. Travers Childs,	"	141	2 50	352 50
H. M. Ellsworth, .	ass't in office,	298½	1 75	522 37
L. R. P. Stockton,	"	51	1 75	89 25
"	"	28	2 00	56 00
J.C.Schermerhorn,	"	23	1 50	34 50
"	"	27	1 75	47 25
Carried forward,.....				

Names.	Rank or station.	Days employed.	Rate per day.	Amount.
Brought forward,.....			\$	
A. S. Harris,.....	ass't in office,	43	\$2 00	86 00
Byron Holley,....	"	27	1 75	47 25
W. S. Burns,.....	"	27	1 75	47 25
"	"	29	1 50	43 50
T. H. Gavitt,.....	"	24	1 50	36 00
"	"	27	1 75	47 25
John M. Carey,..	"	78	1 50	117 00
Tho's Bowring, Jr.,	"	18	1 75	31 50
"	"	29	2 00	58 00
W. W. Bloss,.....	"	18	1 50	27 00
J. W. Adams,....	"	27	2 00	54 00
"	" travel,	....	....	10 20
H. C. Ruggles,...	leveler,	51	2 00	102 00
H. A. Blyth,.....	"	69	2 00	138 00
J. Travers Childs,	"	39	2 00	78 00
"	"	78	2 25	175 00
L. H. Spencer,...	"	25	2 00	50 00
Albert Ball,.....	"	27	1 75	47 25
"	"	8	2 00	16 00
J. M. Fairbanks,..	"	149	2 00	298 00
George Arnoldt,..	lev'r & drafts'n,	158	2 00	316 00
" .....	.. ass't leveler,	127 $\frac{1}{2}$	1 75	223 12
J. M. Fairbanks,..	"	86	1 75	150 50
L. H. Spencer, ..	"	239	1 75	418 25
John H. Follett,..	"	158	1 75	276 50
D. C. Shepard,....	draftsman,	76	2 50	190 00
A. M. Leach,.....	"	44	2 50	110 00
Charles Pinney,..	"	109	2 25	245 25
George Arnoldt, .	"	26	2 00	52 00
F. Buckeridge,..	"	32	2 00	64 00
"	"	27	2 25	60 75
William Flynn,..	"	31	2 00	62 00
"	"	27	2 25	60 75
A. W. Riley, Jr.,	"	35	1 75	61 25
Carried forward,.....				

Names.	Rank or station.	Days employed.	Rate per day.	Amount.
Brought forward,.....			\$	
Charles Ducker,..	draftsman,	12	\$2 00	24 00
S. D. Newcombe, .	rodman,	27	1 50	40 50
John H. Follett,..	"	156	1 50	234 00
G. W. Lamson,..	"	34 $\frac{1}{2}$	1 25	43 13
R. P. Jennings,..	"	31	1 25	38 75
C. L. Curtis,.....	"	27	1 50	40 50
Tho's F. Goodrich,	"	12	1 25	15 00
J. M. Fairbanks,..	"	51	1 50	76 50
J. W. Adams,....	"	18	1 50	27 00
W. W. Bloss,	"	8	1 50	12 00
Charles L. Gaul, .	"	7	1 50	10 50
Wm. B. Turner,..	"	253	1 25	316 25
A. McElroy,.....	"	239	1 25	298 75
Charles Lewis,..	"	54	1 25	67 50
"	"	156	1 50	234 00
Eugene O'Maley, .	"	58 $\frac{1}{2}$	1 50	87 75
Owen E. O'Maley,	"	3	1 50	4 50
Charles W. Barry, chainman,		44	1 25	55 00
"	"	66	1 00	66 00
S. D. Kimball,..	"	48	1 25	60 00
Billings Reynolds,	"	2	1 25	2 50
S. B. Wilmarth,..	"	30	1 25	37 50
C. L. Curtis,.....	"	12	1 25	15 00
P. C. Buckley,..	"	227	1 25	283 75
Eugene Wakeman, ch'n & tape'n,		73	1 25	91 25
J. L. Adams,.....	tapeman,	12	1 25	15 00
W. Ruggles,.....	"	12	1 25	15 00
Henry Benson,..	"	104 $\frac{1}{2}$	1 25	130 63
C. Perrin,.....	axeman,	15	1 25	18 75
E. Bruen,.....	"	7	1 25	8 75
E. R. Bruen,.....	"	15	1 25	18 75
Judson Rice,.....	"	9 $\frac{1}{2}$	1 25	11 88
Martin Hadley,..	"	3	1 25	3 75
J. L. Adams,	"	24	1 25	30 00

Carried forward,.....

Names.	Rank or station.	Days employed.	Rate per day.	Amount.
Brought forward,.....			\$	
Syrrell Treat,....	axeman,	6	\$1 25	7 50
Timothy Webster,	"	7	1 25	8 75
Billings Reynolds,	"	7	1 25	8 75
C. H. Downing, ..	"	223	1 25	278 75
S. D. Kimball,...	"	8	1 25	10 00
Alfred Randall,..	clerk,	21	1 25	26 25
" ..	"	204	1 50	306 00
Daniel McHenry, inspector,		257	2 00	514 00
				<u>\$15,959 23</u>

Incidental Expenditures.

Stationery,.....	\$215 55
Fuel,.....	81 09
Light,.....	47 06
Office rent,.....	51 82
Postage and telegraph,.....	147 27
Miscellaneous,.....	95 08
	<u>637 87</u>
Total for eastern subdivision,.....	<u>\$16,597 10</u>

The above amount expended as follows:

By Daniel Marsh,.....	\$819 01
Richard Vernam, for Daniel Marsh,...	2,076 02
Richard Vernam,.....	13,702 07
	<u>\$16,597 10</u>

STATEMENT

*Of engineering expenses on the middle subdivision, western division,
enlargement of Erie canal, by Thomas Evershed, resident engineer,
from the 1st day of March to the 31st day of December, 1852, in-
clusive.*

Names.	Rank or station.	Days employed.	Rate per annum.	Amounts.
Thomas Evershed,.	res. eng'r,	298	\$1,500 00	\$1,219 51
"	"	travel,		134 76
			Per day.	
Henry Pomeroy,..	2d ass't,	105	\$2 50	262 50
"	"	travel,	....	2 88
C. Q. Newcombe,.	"	263	2 50	657 50
Hathaway Hurd,..	"	263	2 50	657 50
Levi N. Bowlsby,..	"	204	2 50	510 00
Henry C. Ruggles,	"	79	2 50	197 50
John Dougherty,..	"	210	2 50	525 00
"	"	travel,	....	9 15
"	leveler,	41	2 00	82 00
Henry C. Ruggles,	"	184	2 00	368 00
James W. Adams,.	"	18	1 50	27 00
"	"	236	2 00	472 00
John A. Lighthall,	"	79	1 75	138 25
"	"	travel,	....	29 23
George G Smith,..	ass't in office,	243	1 75	425 25
Wm. Flynn,.....	draftsman,	93	2 00	186 00
John A. Lighthall,	rodman,	178	1 50	267 00
John B. Whitney,.	"	65	1 25	81 25
"	"	travel,	....	50
Fred'k B. Frisbie,.	"	176	1 25	220 00

Carried forward,..... \$

Names.	Rank or station.	Days employed.	Rate per annum.	Amounts. doll's. cts.
Brought forward,				\$
Charles F. Smith,.	rodman,	157	\$1 25	196 25
" ..	"	79	1 50	118 50
Newton T. Smith,.	tapeman,	103	1 12 $\frac{1}{2}$	115 88
" ..	"	158	1 25	197 50
" ..	"	travel,	....	6 00
James S. Bowlsby,.	"	204	1 25	255 00
Owen E. O'Maley,.	chainman,	27	1 25	33 75
H. Nelson Towner,	"	113	1 12 $\frac{1}{2}$	127 12
Francis Scandlon,.	axeman,	250	1 12 $\frac{1}{2}$	281 25
Julian N. Adams,.	"	25	1 25	31 25
Sol. Richardson, jr.	"	233	1 12 $\frac{1}{2}$	262 12
Sylvester H. Read,	"	13	1 00	13 00
W. H. Graves,....	"	126 $\frac{1}{2}$	1 00	126 50
John Clother,....	"	1	1 00	1 00
John Osborne,....	"	68	1 12 $\frac{1}{2}$	76 50

\$8,314 40

Incidental Expenditures.

Stationery,	\$206 64	
Fuel,	69 15	
Light,	52 92	
Office rent,.....	159 73	
Postage and telegraph,.....	41 58	
Miscellaneous,.....	86 56	
	<hr/>	616 58
		<hr/>
		\$8,930 98
		<hr/>

STATEMENT

Of engineering expenses on the western subdivision, western division, enlargement of Erie canal, by John Lathrop, resident engineer, for the months of January and February, 1852, and by George Cole, resident engineer, from the 1st day of February to the 31st day of December, 1852, inclusive.

Names.	Rank or station.	Days employed.	Rates per annum.	Amounts.
John Lathrop,....	res. engineer,	2 mos.,	\$1,500 00	\$250 00
"	"	travel,	....	103 02
George Cole,.....	"	11 mos.,	1,500 00	1,375 00
"	"	travel,	.....	708 54
			Per day.	
Edward Colman,.	1st ass't eng'r.,	57	3 50	199 50
Stephen F. Gooding,	"	271	3 50	948 50
"	"	travel,	....	14 88
Edward Colman,..	2d ass't eng'r.,	44	2 50	110 00
"	"	travel,	....	5 88
Stephen F. Gooding,	"	43	2 50	107 50
"	"	travel,	....	6 75
Henry Pomeroy,...	"	51	2 50	127 50
M. L. Varney,....	"	269	2 50	672 50
Stephen A. Charles,	"	255	2 50	637 50
Charles B. Morse,	"	269	2 50	672 50
"	"	travel,	....	1 13
John Bisgood,.....	2d as't & dr'n	158	3 50	553 00
John S. Vernam,...	" ipt'r	8	3 00	24 00
T. Williams,.....	2d ass't eng'r.	45	3 50	157 50
Stephen G. Philips,	leveler,	45	1 62 $\frac{1}{2}$	73 13
S. P. Hamilton,....	"	78	1 75	136 50
"	"	79	2 00	158 00
Stephen A. Charles,	"	45	1 75	78 75
S. L. Potter,.....	"	158	2 00	316 00

Carried forward,.....

Names.	Rank or station.	Days employed.	Rates per annum.	Amounts.
Brought forward,.....				
Geo. C. Hamilton,..	leveller,	45	\$2 00	\$90 00
John Dougherty,..	"	51	2 00	102 00
Henry S. Lucas,...	"	138	2 00	276 00
"	" travel,		....	1 13
Alfred W. Barrett,	"	27	1 75	47 25
"	"	216	2 00	432 00
Julian Hulaniski,.	"	78	2 00	156 00
S. P. Hamilton,...	ass't "	78	1 75	136 50
Henry S. Lucas,...	" "	60	1 75	105 00
William G. Welch,	" "	158	1 75	276 50
William Hartley,	surveyor,	10	2 00	20 00
John Bisgood,....	draftsman,	156	3 00	468 00
Jay Johnson,.....	"	51	2 25	114 75
"	"	46	2 50	115 00
"	" travel,		....	20 70
Thomas Pettingale,	"	109	2 50	272 50
"	" travel,		....	41 87
John H. McAlvin,	"	35	1 50	52 50
Julian Hulaniski,.	"	40	2 00	80 00
William S. Watson,	"	10	2 25	22 50
Frederick Budden,	"	15	2 50	37 50
H. H. Alling,....	rodman,	40	1 12½	45 00
John A. Lighthall,	"	24	1 50	36 00
M. L. Varney,....	"	45	1 50	67 50
John M. Foquet,..	"	51	1 25	63 75
"	"	58	1 50	87 00
"	" travel,		....	41 82
Samuel L. Potter,.	"	105	1 50	157 50
"	"	49	1 25	61 25
"	" travel,		....	2 58
Alfred W. Barrett,	"	51	1 50	76 50
William G. Welch,	"	115	1 50	172 50
do. do.,..	" travel,		....	8 25
John B. Benton,..	"	263	1 50	394 50
Thos. M. Griffith,..	"	10	1 25	12 50

Carried forward,..... \$

Names.	Rank or station.	Days employed.	Rate per day.	Amounts.
Brought forward,				\$
Junius S. Mix,	rod m'n & ch'n,	157	\$1 50	235 50
Joseph Sisz,	rd, ax, & t'p'n,	79	1 50	118 50
Daniel P. Risley, tap. & chainm'n,		35	1 12 $\frac{1}{2}$	39 38
Howard Cockburn, " "		35	1 25	43 75
Reuben C. Olcott, ..	" "	13	1 00	13 00
Newton T. Smith, .	" "	13	1 12 $\frac{1}{2}$	14 63
Smith Reynolds, ..	" "	55	1 25	68 75
Junius S. Mix,	" "	105	1 25	131 25
do. do.,	" " ,	travel,	....	1 14
Frank Short,	" "	43	1 25	53 75
John A. Lighthall, " "		27	1 12 $\frac{1}{2}$	30 37
Owen E. O'Maley, ..	" "	39	1 12 $\frac{1}{2}$	43 87
Albert Ernst,	" and axem'n,	236	1 25	295 00
H. S. Phillips,	" and cha'm'n,	201	1 12 $\frac{1}{2}$	226 13
B. M. Wood,	tapeman,	158	1 25	197 50
do. do.,	axeman,	119	1 12 $\frac{1}{2}$	133 89
Albert Ernst,	"	78	1 12 $\frac{1}{4}$	87 75
Smith Reynolds, ..	"	51	1 00	51 00
Charles H. Hilton, " .		87	1 00	87 00
do. do., .	"	144	1 12 $\frac{1}{2}$	162 00
do. do., .	"	travel,	.....	1 15
William Blowers, ..	"	6	1 00	6 00
Reuben C. Olcott, ..	"	27	1 00	27 00
John Verso,	"	140	1 12 $\frac{1}{2}$	157 51
Peter Demune, ...	"	18	1 12 $\frac{1}{2}$	20 25
Francis Green, ...	"	79	1 25	98 75
Joseph Adams, ...	"	52	1 25	65 00
John Eagan,	"	70	1 12 $\frac{1}{2}$	78 75
George G. Root, ..	clerk,	79	2 00	158 00
Richard Willing, .	clerk, &c. &c.,	157	2 00	314 00
do. do., ..	" in'r, & rd'n,	158	2 50	395 00
do. do., ...	clerk,	travel,	....	40 95
Newton T. Smith, .	inspector,	27	1 12 $\frac{1}{2}$	30 38
S. W. Bagnall, ...	"	72	2 00	144 00
Jacob Teley,	" &c.,	79	2 25	177 75

Carried forward,

Names.	Rank or Station.	Days' employed.	Rate per day.	Amounts.
Brought forward,				\$
Israel Gillett,	inspector,	52	\$2 00	104 00
Joseph M. Doty, ..	"	26	2 00	52 00
W. Driggs,	guaging water, ..		....	25 00
				<hr/>
				\$15,461 58

Incidental Expenses.

Stationery,	\$307 78	
Fuel,	62 98	
Light,	31 74	
Office rent,	256 93	
Postage and telegraph,	115 69	
Miscellaneous,	313 83	
		<hr/>
		1,088 95
		<hr/>
Total,		16,550 53
Of the above, Lathrop expended,	\$1,984 42	<hr/>
" " Cole, " 	14,566 11	<hr/>
		\$16,550 53
		<hr/>

Summary.

Eastern subdivision,	\$16,597 10	
Middle " 	8,930 98½	
Western, " 	16,550 53	
		<hr/>
		\$42,078 61½
J. B. Stillson, division engineer,		
salary,	\$141 67	
" " " " travel,	49 35	
		<hr/>
		191 02
J. D. Fay, division engineer, salary, ..	\$1,008 02	
" " " " travel,	243 17	
		<hr/>
		1,251 19
		<hr/>
Total western division E. E. Canal,		\$43,520 82
		<hr/>

TABULAR STATEMENT

Of Engineering expenses on the Champlain Canal for the year 1852.

Names.	Rank or station.	Days employed.	Price per day.	Amounts.	Totals.
J. B. Goodsell,...	Res. Eng'r,	½ month	\$1,500	\$62 50	
"	"	travel,	.....	34 20	
Francis F. Curry,	"	½ month	1,500	62 50	
"	"	travel,	.....	10 98	
Wm. A. Perkins,.	"	74	1,500	353 50	
"	"	travel,	... .	83 44	
"	.... 1st ast. eng.	5	per day. 3,50	17 50	
Charles H. Beach,	2d " "	104	2,50	260 00	
John W. Murphy,	" " "	113	2,50	282 50	
James M. Rich, ..	" " "	72	2,50	180 00	
"	.... Dr'ghtman,	8	2,50	20 00	
Ogden Edwards,...		travel,	.....	2 50	
R. D. Shepherd, ..	Ast. Lev'l'r.	46	1,75	80 50	
D. L. Olmsted,...	Rodman,	3	1,50	4 50	
Joseph L. Harris,.	Dr'n & C'k.	161	2,50	402 50	
J. H. Watkins,...	Rodman,	7	1,50	10 50	
A. M. Peck,.....	Clerk,	6	2,00	12 00	
P. E. Sickler,....	"	4	2,00	8 00	
Jas. McKown, ...	"	3	2,25	6 75	
Abial West,	Inspector,	126	2,00	252 00	
James Stewart,...	"	73	2,00	146 00	
Joseph Goodale, ..	"	51	2,00	102 00	
Samuel Lewis,....	"	51	2,00	102 00	
John Hitchcock, ..	"	29	2,00	58 00	
"	"	3	3,00	9 00	
Thos. Leonard	"	80	2,00	160 00	
"	"	97	3,00	291 00	
Total of engineering and inspecting,.....				\$3,014 27	
Carried forward,.....				\$3,014 27	

Brought forward.....\$3,014 27

Incidental Expenses.

Light,	\$17,36
Fuel,	6,52
Office rent,	21,25
Postage,	4,61
Express,	3,78
Stationery,	24,88
Digging test pits,	4,50
Miscellaneous,	18,00
	<hr/> 100,90
Total,	<hr/> \$3,115 17 <hr/>

The amount was expended as follows :

By J. P. Goodsell,	988,70
F. F. Curry,	642,23
W. A. Perkins,	1,484,24
	<hr/>
Total,	<hr/> \$3,115,17 <hr/>

TABULAR STATEMENT

Of engineering expenses on the Black River canal for the year 1852.

Name.	Rank or station.	Time. Days:	Rate of comp'n per day.	Amount.
Daniel C. Jenne, resid't engineer,		6 ms.	\$1,500	\$750 00
do travel,				153 48
Frances F. Curry, resid't eng'r,		2 ms.	1,500	250 00
do travel,		days.	per day.	131 88
J. S. Brown, 1st assistant eng'r,		64	3 50	224 00
do 2d do do		39	3 50	136 50
do allow'nce by canal b'rd,				137 00
travel,				8 72
J. G. Sippell, 1st assistant eng'r,		179	3 50	626 50
E. W. Butler, 2d do do		142	2 50	355 00
J. D. Coleman, do do		132	2 50	330 00
do surveyor,		51	2 50	127 50
do allow'nce by can'l b'd,				113 39
Wm. G. Ward, 2d assist'nt eng'r,		77	2 50	192 50
James A. Gray, do do		259	2 50	647 50
Alexander Brown, do do		266	2 50	665 00
Charles G. Talcott, do do		161	2 50	402 50
James E. Willard, leveller,...		51	1 75	89 25
do do		75	2 00	150 00
Oscar L. Wetmore, do		52	2 00	104 00
C. L. Phelps, surveyor,		11	2 00	22 00
John P. Houghton, leveller,...		79	2 00	158 00
do rodman, ...		173	1 50	259 50
A. V. Hartwell, do ..		16	1 25	20 00
do do ..		240	1 50	360 00
Hiram Knight, do ..		180	1 50	270 00
G. W. Chase, do ..		12	1 50	12 00
do do ..		157	1 50	235 50
H. R. Hadley, do ..		186	1 50	279 00
J. W. Simpson, tapeman and chainman,.....		256	1 25	320 00

Carried forward,..... \$

Name.	Rank or station.	Time. Days.	Rate of comp'n per day.	Amount.
Brought forward,.....				\$
Ephraim Owens, tapeman and chainman,.....		13	\$1 25	16 25
Ephraim Owens, inspector,....		225	2 00	450 00
Robert Wilson, tapeman and chainman,		171	1 25	213 75
Alexander Illingsworth, tapeman and chainman,		85	1 25	106 25
P. R. Prime, rodman,		79	1 50	118 50
C. H. Nicholson, axeman,		17	1 00	17 00
Theophilus Williams, do		27	1 00	27 00
Chester Ray, axeman,		2	1 00	2 00
G. M. Judd, do		3	1 00	3 00
A. Higby, do		6	1 00	6 00
Roderick Shaw, inspector,		51	1 50	76 50
L. M. Mattice, do		224	2 00	448 00
Octave Blanc, allowance by canal board,				115 63
				<hr/>
				\$9,130 60

Amounts.

Stationery,	\$61 90
Fuel,	58 93
Light,	77 75
Office rent,	134 34
Postage,	28 58
Telegraph,	5 59
Express,	14 50
Miscellaneous,	619 62
<hr/>	
	1,001 21
<hr/>	
	\$10,131 81
<hr/>	

The above amount was expended as follows :

By D. C. Jenne,	\$6,405 26
By F. F. Curry,	3,726 55
<hr/>	
	\$10,131 81
<hr/>	

(No. 10.)

OSWEGO CANAL.

Statement showing the number and compensation of engineers employed during the year 1852 on the Oswego canal, embraced in the middle division of the New-York State canals.

M. S. KIMBALL, Resident Engineer.

Names.	Nature of service rendered.	Time. Days.	Rate of comp'n per day.	Amounts.
Joseph French,	1st assistant,	256	\$3 50	\$896 00
W. W. Jerome,	leveller,	78	2 00	156 00
do	2d assistant,	236	2 50	590 00
Wm. J. Dunham,	ass't leveller,	66	1 50	99 00
Bruce Kimball,	rodman,	78	1 25	97 50
do	do	236	1 50	354 00
Chas. B. Hyde,	do	221	1 50	331 50
A. C. Scott,	draughtsman,	309	2 00	618 00
Thomas Jekylle,	do	14	2 00	28 00
Wm. E. Sparrow,	axeman,	89	1 25	111 25
Chas. H. Lusk,	clerk,	78	1 25	97 50
do	do	236	1 50	354 00
Wm. Pollock,	inspector,	63	2 25	141 75
Joseph Wilbur,	do	35	2 00	70 00
George H. Peck,	do	115	2 00	230 00
John V. Boomer,	tapeman,	131	1 50	196 50
Voltaire Newton,	sup't of pile driv'g,	42	1 50	63 00
Jesse Palmiter,	do do	5 $\frac{3}{4}$	2 00	11 50
M. S. Kimball,	resident engineer,	1 yr.	1,500 00 pr yr.	1,500 00
do	travel,			384 36
				<hr/> \$6,329 86 <hr/>

Incidental Expenses.

	Amounts.
Office rent,.....	\$95 50
Stationery,.....	66 84
Postage,.....	11 30
Telegraph,	11 92
Express,	2 63
Light,.....	17 77
Fuel,	29 18
Affidavits to monthly estimates,.....	12 90
Miscellaneous,.....	66 92
	<hr/>
	\$314 96
	<hr/>

EXPENDITURES

Of the engineer department on the Cayuga and Seneca, and Crooked Lake Canals, the Chemung Canal and Feeder, and the Cayuga inlet, embraced in the Western subdivision of the middle division of the New-York State Canals.

CAYUGA AND SENECA CANAL.

Names.	Kind of service.	No. of days employed.	Rate of compensation per day.	Amount.	Total.
David Richmond, 1st ass't eng.,		3	\$3 50	\$10 50	
Jame Barnes,....	"	19	3 50	60 50	
Samuel T. Wright,	"	4	3 50	14 00	
Wm. H. H. Gere, 2d	"	1	2 50	2 50	
Ogden Edwards,..	"	19	2 50	47 50	
Luther Eno,.....	leveler,	4	2 00	8 00	
T. J. McMaster,..	rodman,	6	1 50	9 00	
S.P.Schermerhorn,	"	3	1 50	4 50	
Peter L. Hyde,...	tapeman,	3	1 25	3 75	
James Brown,....	"	5	1 25	6 25	
George Robbins,..	inspector,	1	2 25	2 25	
W. Burke,.....	draftsman,	42	2 00	84 00	
C. W. Wentz,....	res. eng'r,			62 50	
W. B. Vedder,...	"			95 01	
"	... travel,			25 68	
				-----	\$141 94

Crooked Lake.

W. B. Vedder,...	res. eng'r,		\$23 79	
"	"	... travel,	4 92	
			-----	28 71

Chemung Canal and Feeder.

Ogden Edwards,..	2d ass't eng'r,	82	\$2 50	\$205 00
S.P.Schermerhorn,	rodman,	94	1 50	141 00
Barney Rieley,...	tapeman,	1 $\frac{1}{2}$	1 25	1 87
J. B. O. Shanacey,	axeman,	4	1 25	5 00
Jona. C. Burnham,	inspector,	3	2 00	6 00

Carried forward,.....

Names.	Kind of service.	No. of days employed.	Rate of com- pensation per day.	Amount.	Total.
Brought forward,				\$	

W. Burke,	draftsman,	21	\$2 00	42 00	
W. B. Vedder, ...	res. eng'r,			180 75	
"	... travel fees,			96 06	
				-----	\$677 68

Incidental Expenses.

Miscellaneous,				\$1 87	
				-----	1 87

Cayuga Inlet.

W. Burke,	draftsman,	2	\$2 00	\$4 00	
W. B. Vedder, ...	res. eng'r,			9 49	
"	... travel fees,			4 14	
				-----	17 63
					<u>\$10,115 91</u>

Removal of bar at foot of Owasco lake and improvement of outlet.

Ogden Edwards, ..	2d ass't eng'r,	21	\$2 50	\$52 50	
A. O. Archibald, ..	"	8	2 50	20 00	
Peter S. Tobin, ...	ass't eng'r,	1	2 00	2 00	
Joseph W. Clark, leveler,		9	2 00	18 00	
S.P.Schermerhorn, rodman,		28	1 50	42 00	
James Brown,	tapeman,	34	1 25	42 50	
Henry Burr,	chainman,	1	1 50	1 50	
Dan'l W. Thyme, ..	axeman,	3	1 25	3 75	
Geo. H. Carr,	surveyor,	6	2 00	12 00	
"	.... "	13	2 25	29 25	
Caleb Whiting, ...	inspector,	7	2 00	14 00	
W. Burke,	draftsman,	52	2 00	104 00	
W. B. Vedder, ...	res. eng'r,			76 26	
"	... travel fees,			26 22	
				-----	443 98

Incidentals.

Miscellaneous,				\$18 09	
				-----	18 09
					<u>\$10,577 98</u>

STATEMENT

Of engineering expenses on the Genesee Valley canal, embraced in the western division of the New-York State canals, by Orville W. Story, resident engineer, from the 1st day of January to the 31st day of December, 1852, inclusive.

Names.	Rank or station.	Days employed.	Rate per annum.	Amounts.
Orville W. Story, .	res. engineer,	1 year,	\$1,500 00	\$1,500 00
"	"	travel,		351 06
			per day.	
William Mullins, .	1st ass't eng'r,	178	\$3 50	623 00
"	"	travel,		7 35
W. D. Jones,	"	66	3 50	p'd, 194 50
H. A. Smith,	"	63	3 50	220 50
John A. Ditto,	2d engineer,	312	2 50	780 00
J. O. Hudnutt,	"	86	2 50	215 00
William Rumble, . . .	"	303	2 50	757 50
H. R. Dutton,	"	78	2 50	195 00
Geo. W. White,	"	314	2 50	785 00
H. E. Brown,	"	236	2 50	590 00
A. C. Bishop,	"	154	2 50	385 00
James Jenks,	leveler,	95	1 75	166 25
"	"	travel,		7 45
H. E. Brown,	"	77	2 00	154 00
William L. Storke, . .	"	70	2 00	140 00
John Severence, . . .	"	78	1 75	136 50
Jas. O. McClure, . . .	"	146	1 50	219 00
Joseph B. Ward, . . .	"	30	2 00	60 00
Geo. W. Pomeroy, . . .	"	27	2 00	54 00
"	"	265	1 75	463 75
A. C. Bishop,	"	87	2 00	174 00
Millard Porter,	ass't leveler,	78	1 50	117 00
James Mullins,	draftsman,	310	1 75	542 50
George Porter,	rodman.	78	1 10	85 80
Robert Orton,	"	78	1 10	85 80

arried forward,

Brought forward,.....

Names.	Rank or station.	Days employed.	Rate per annum.	Amounts.
M. H. Cobb,.....	"	78	1 10	85 80
Geo. W. Wilson,..	"	230	1 25	287 50
M. H. Cobb,	"	236	1 25	295 00
Chas. H. Mills,..	"	190	1 25	237 50
Henry C. Balcomb	"	154	1 25	192 50
Jas. O. McClure,..	"	69	1 25	86 25
Lorenzo McClure,.	chainman,	79	1 12 $\frac{1}{2}$	88 88
Heber Angell,....	"	117	1 12 $\frac{1}{2}$	131 63
W. W. Byrns,.....	"	97	1 12 $\frac{1}{2}$	109 13
R. D. Howe,.....	"	79	1 12 $\frac{1}{2}$	88 88
W. C. Smith,.....	axeman,	1	1 00	1 00
Samuel H. Hayes,.	"	1	1 25	1 25
John Kern,.....	"	27	1 00	27 00
" ..	"	43	1 10	47 30
G. W. Kingsley,..	"	27	1 00	27 00
" ..	"	51	1 10	56 10
L. A. Conklin,....	"	6	1 10	6 60
A. G. Rose,.....	"	25 $\frac{1}{2}$	1 12 $\frac{1}{2}$	28 69
John C. Spencer,..	"	132	1 12 $\frac{1}{2}$	148 50
C. S. Vernam,	"	7	1 12 $\frac{1}{2}$	7 88
W. Kirkpatrick,..	"	21	1 12 $\frac{1}{2}$	23 63
L. McClure,.....	"	34	1 12 $\frac{1}{2}$	38 25
J. P. Wood,.....	clerk,	126	2 00	252 00
Thomas Daley,....	"	55	2 00	110 00
J. K. Anderson,..	"	158	1 75	276 50
" ..	"	73	1 50	109 50
Philip Armstrong,	inspector,	126	2 00	252 00
Hugh McNamara,.	"	227	2 00	454 00

\$12,480 23
Incidental Expenditures.

Stationery,.....	\$221 38
Fuel,	72 33

Carried forward,.....

Brought forward,.....		
Light,.....	95 66	
Office rent,.....	189 58	
Postage and telegraph,.....	81 25	
Miscellaneous,.....	73 00	
	<hr/>	733 20
		<hr/>
		\$13,213 43
Salary of J. D. Fay, division engineer, \$550 31		
Travelling Expenses of “	183 06	
	<hr/>	733 37
		<hr/>
Total for Genesee Valley Canal,..		\$13,946 80
		<hr/>

STATEMENT

Showing the amount of work that has been completed during the year 1852, on the Eastern Division of the Enlargement of the Erie canal.

Length in miles.	No. of structures	Character of work.	Est. cost at contract prices.	Amount done in 1852.	Total done.
0.36		Furnishing stone for lock No. 36,.....	\$1,800 50	\$1,800 50	\$1,800 50
	1	Weigh lock, West Troy,.....	32,149 23	1,990 00	32,149 23
	1	do house, do	10,699 33	110 00	10,699 33
		Section at New London,.....	6,382 16	1,732 16	6,382 16
0.25	1	Bridge abutments at Rome,.....	4,323 71	329 62	4,323 71
		Section East at Saquoit aqueduct,.....	5,540 00	320 00	5,540 00
	1	Aqueduct at Oriskany,.....	32,680 00	740 00	32,680 00
			\$93,574 93	\$7,022 28	\$93,574 93

TABULAR STATEMENT B,

Showing the length, number of structures, character of work, estimated cost at contract prices, amount done in 1852, whole amount done, and amount remaining to be done on the eastern division of the enlargement of the Erie canal.

Length in miles.	No. of structures	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
47.20	.....	Sections,	\$1,154,471 00	\$124,540 96	\$239,140 96	\$915,330 04
	9	Locks,	245,700 00	3,128 39	3,128 39	242,571 61
	5	Aqueducts,	86,850 00	9,457 16	25,587 16	61,262 84
	28	Culverts,	48,760 00	1,025 07	11,300 07	37,459 93
	5	Waste weirs,	18,320 00	498 81	498 81	17,821 19
	84	Bridge abutments,	108,010 00	4,204 62	4,204 62	103,805 38
	84	do superstructures,	83,329 50	.....	.....	83,329 50
	9	Bridges,	36,980 00	2,605 00	30,935 00	6,045 00
	9	Valve gates,	4,750 00	.....	.....	4,750 00
	1	Dam, bulkhead and feeder,	13,320 00	1,947 89	1,947 89	11,372 11
			\$1,800,490 50	\$147,407 90	\$316,742 90	\$1,483,747 60

Of the above amount, there was let Dec. 29th, 1851 :

36.03	.....	Sections,	\$878,821 00	\$38,049 96	\$38,049 96	\$840,771 04
	9	Locks,	245,700 00	3,128 39	3,128 39	242,571 61
	4	Aqueducts,	60,250 00	1,907 16	1,907 16	58,342 84
	5	Waste weirs,	18,320 00	498 81	498 81	17,821 19
	26	Culverts,	38,210 00	1,025 07	1,025 07	37,184 93
	84	Bridge abutments,	108,010 00	4,204 62	4,204 62	103,805 38
	84	do superstructures,	83,329 50	.....	.....	83,329 50
	9	Valve gates,	4,750 00	.....	.....	4,750 00
	1	Dam, bulkhead and feeder,	13,320 00	1,947 89	1,947 89	11,372 11
			\$1,450,710 50	\$50,761 90	\$50,761 90	\$1,399,948 60

Work remaining to be done as shown by the foregoing tables,	\$1,483,747 60
Work not under contract,	150,000 00
Work done on contracts let under the law of 1851 (not paid for),	50,761 90
Total cost of completing the eastern division of the enlargement of the Erie, at contract prices, on the plans and locations of 1851,	<u>\$1,684,509 50</u>

STATEMENT

Showing the amount of work which has been completed during the year 1852, on the middle division of the Erie canal.

Length in miles.	No. of struc.	Character of work.	Estimated cost at contract prices.	Amount done in 1852.	Total amount done.
1.96	.....	Sections,	\$53,184 72	\$6,920 42	\$53,184 72
	1	Aqueducts,	21,794 95	2,114 95	21,794 95
	1	Waste weir,	856 53	96 53	856 53
	5	Bridges,	10,445 97	1,315 97	10,445 97
			<u>\$86,282 17</u>	<u>\$10,447 87</u>	<u>\$86,282 17</u>

Repairs.

Iron superstructure for Main-street bridge at Jordan,	<u>\$2,148 69</u>	<u>\$2,148 69</u>	<u>\$2,148 69</u>
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STATEMENT

Showing the length, number of structures, character, estimated cost of work under contract, amount done in 1852, whole amount done, and amount remaining to be done at contract prices, on the middle division enlargement of the Erie canal.

EASTERN SUBDIVISION.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
28.13	.....	Sections,	\$808,833 51			
	1	Lock (double),	38,074 60	\$57,435 49	\$244,146 04	\$564,687 47
	.....	Valve gates and fixtures,	1,803 39	4,880 00	33,068 90	5,005 70
	2	Aqueducts,	36,284 17	.....	1,580 00	223 39
24	.....	Culverts,	53,334 20	358 68	13,768 68	22,515 49
	1	Waste weir,	2,828 53	.....	2,789 37	50,544 83
	1	Dam and guard gate,	2,243 54	.....	.....	2,828 53
22	.....	Bridges,	58,148 92	.....	.....	2,243 54
				361 00	10,605 16	47,543 76
			\$1,001,550 86	\$63,035 17	\$305,958 15	\$695,592 71

Of the above amount, there was let in December, 1851 :

16.99	.....	Sections,	\$533,706 58	\$17,335 49	\$17,335 49	\$516,371 09
	.....	Locks, .....	.....	.....	.....	.....
	1	Aqueduct,	16,015 44	358 68	358 68	15,656 76
	19	Culverts,	47,158 28	.....	.....	47,158 28
	1	Waste weir,	2,828 53	.....	.....	2,828 53
	1	Dam and guard gate,	2,243 54	.....	.....	2,243 54
	15	Bridges,	46,092 89	.....	.....	46,092 89
			\$648,045 26	\$17,694 17	\$17,694 17	\$630,351 09

TABULAR STATEMENT

Showing the length, number of structures, character, estimated cost of work under contract, amount done in 1852, whole amount done, and amount remaining to be done at contract prices on the middle division enlargement of the Erie canal.

WESTERN SUBDIVISION.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
17.58	.....	Sections,	\$613,833 23	\$37,426 85	\$76,696 85	\$537,136 38
	2	Locks (double).....	80,507 40	240 00	77,920 00	2,587 40
	2	Old locks to be lengthened, &c.,.....	8,808 00	.....	.....	8,808 00
	1	New double lock to be raised,	5,884 00	.....	.....	5,884 00
	2	Aqueducts,.....	205,461 98	43,145 00	125,050 00	80,411 98
	16	Culverts,	19,871 76	.....	397 00	19,474 76
	20	Bridges,.....	52,652 20	.....	1,450 00	51,202 20
	.....	Valve gates and fixtures,	2,165 60	.....	.....	2,165 60
			\$989,184 17	\$80,811 85	\$281,513 85	\$707,670 32

Of the above amount, there was let in December, 1851 :

8.85	.....	Sections,	\$426,272 00	\$9,411 85	\$9,411 85	\$416,860 15
	11	Culverts,	17,542 64	.....	.....	17,542 64
	14	Bridges,	41,186 10	.....	.....	41,186 10
	.....	Valve gates,.....	2,165 60	.....	.....	2,165 60
			\$487,166 34	\$9,411 85	\$9,411 85	\$477,754 49

SUMMARY OF MIDDLE DIVISION.

	Estimated cost.	Amt. done in 1852.	Total amt. done.	Amount remaining to be done.
Eastern subdivision.	\$1,001,550 86	\$63,035 17	\$305,958 15	\$695,592 71
Western do	989,184 17	80,811 85	281,513 85	707,670 32
	<u>\$1,990,735 03</u>	<u>\$143,847 02</u>	<u>\$587,472 00</u>	<u>\$1,403,263 03</u>
Work done under contracts of 1851, and not paid for,.....				27,106 02
Work not under contract,.....				<u>88,325 63</u>
The cost of completing the middle division enlargement of Erie canal, at contract and estimated prices, upon the plans and locations of 1851,				<u>\$1,518,694 68</u>

Repairs of the Erie canal.

EASTERN SUBDIVISION.

	Estimated cost.	Amount done in '52.	Total amount done.	Amt. remaining to be done.
McBride-street bridge,....	<u>\$5,000 00</u>	<u>\$2,423 00</u>	<u>\$2,423 00</u>	<u>\$2,577 00</u>

STATEMENT

Showing the amount of work that has been completed during the year 1852, on the enlargement of the Erie canal, western division.

EASTERN SUBDIVISION.

Length in miles.	No. of struct.	Character of work.	Est. cost at con. prices.	Amt. done in 1852.	Total amount done.
1		Lock No. 2, east of Rochester,	<u>\$24,347 96</u>	<u>\$977 80</u>	<u>\$24,347 96</u>

WESTERN SUBDIVISION.

1	....	Main and Hamburgh-st. canal,	<u>\$4,723 40</u>	<u>\$1,073 40</u>	<u>\$4,723 40</u>
1		Swing bridge at Ohio-st.....	<u>6,573 79</u>	<u>1,743 79</u>	<u>6,573 79</u>
			<u>\$11,297 19</u>	<u>\$2,817 19</u>	<u>\$11,297 19</u>

TABULAR STATEMENT

Showing the length, number of structures, character of work, estimated cost at contract prices, amount done in 1852, whole amount done, and amount remaining to be done on the western division of the enlargement of Erie canal.

EASTERN SUBDIVISION.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
55.44	.....	Sections,	\$2, 613, 981 12	\$46, 803 85	\$105, 471 35	\$2, 508, 509 77
	6	Locks (one guard),	141, 231 91	12, 935 00	38, 825 00	102, 406 91
	4	to be lengthened and widened,	24, 660 00	.....	.....	24, 660 00
	9 set	Valve gates and fixtures,	7, 234 15	.....	3, 688 81	3, 545 64
	2	Aqueducts,	39, 772 16	.....	.....	39, 772 16
	8	Waste weirs,	9, 883 86	758 00	758 00	9, 125 86
	78	Bridge abutments and two superstructures,	131, 225 45	1, 839 00	3, 217 00	128, 008 45
	76	Bridge superstructures,	112, 598 85	.....	.....	112, 598 85
	.....	Removing buildings on section 231,	3, 995 00	2, 385 00	3, 170 00	.825 00
	39	Culverts,	134, 753 55	.....	10, 862 00	123, 891 55
			\$3, 219, 336 05	\$64, 720 35	\$165, 991 86	\$3, 053, 344 19

Of the above amount there was let December 29th, 1851:

51.58	.....	Sections,	\$2, 502, 506 53	\$22, 471 35	\$22, 471 35	\$2, 480, 035 18
	4	Locks (one guard),	91, 858 27	.....	.....	91, 858 27
	4 set	Valve gates and fixtures,	2, 653 64	.....	.....	2, 653 64
	2	Aqueducts,	39, 772 16	.....	.....	39, 772 16
	38	Culverts,	123, 385 55	.....	.....	123, 385 55
	7	Waste weirs,	8, 783 86	.....	.....	8, 783 86
	76	Bridge abutments,	126, 907 45	95 00	95 00	126, 812 45
	76	superstructures,	112, 598 85	.....	.....	112, 598 85
			\$3, 008, 466 31	\$22, 566 35	\$22, 566 35	\$2, 985, 899 96

TABULAR STATEMENT.—(CONTINUED.)
MIDDLE SUBDIVISION.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
38.35	.....	Sections,	\$1,341,174 32	\$81,493 74	\$100,366 92	\$1,240,877 40
	1	Aqueduct,	48,454 00	28,823 00	41,648 00	6,806 00
	52	Culverts,	118,561 21	158 00	636 00	117,925 21
	5	Waste weirs,	7,198 03	.....	.....	7,198 03
	46	Bridge abutments and one superstructure,	77,028 55	3,966 00	4,494 00	72,534 55
	47	superstructures,	86,820 91	.....	.....	86,820 91
			\$1,679,237 02	\$114,440 74	\$147,144 92	\$1,532,092 10
<i>Of the above amount there was let December 29th, 1851:</i>						
35.65	.....	Sections,	\$1,217,967 14	\$9,267 74	\$9,267 74	\$1,208,699 40
	50	Culverts,	115,344 21	.....	.....	115,344 21
	5	Waste weirs,	7,198 03	.....	.....	7,198 03
	45	Bridge abutments,	72,328 55	.....	.....	72,328 55
	47	Bridge superstructures,	86,820 91	.....	.....	86,820 91
			\$1,499,658 84	\$9,267 74	\$9,267 74	\$1,490,391 10

TABULAR STATEMENT.—(CONTINUED.)

WESTERN SUBDIVISION.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
41.13	.....	Sections,	\$2, 166, 035 49	\$148, 190 35	\$460, 258 35	\$1, 705, 777 14
	2	Ship lock and guard lock,	90, 944 90	12, 755 00	49, 885 00	41, 059 90
	22	Culverts,	47, 620 10	.....	.....	47, 620 10
	3	Waste-weirs,	2, 605 90	.....	.....	2, 605 90
	24	Bridge abutments,	45, 695 10	.....	.....	45, 695 10
	28	Bridge superstructures,	56, 661 00	.....	.....	56, 661 00
	.....	Erie basin and slips,	243, 577 88	52, 046 00	164, 396 00	79, 181 88
			\$2, 653, 140 37	\$212, 991 35	\$674, 539 35	\$1, 978, 601 02

Of the above amount there was let December 29th, 1851:

24.69	.....	Sections,	\$1, 481, 652 97	\$14, 862 35	\$14, 862 35	\$1, 466, 790 62
	1	Guard lock,	29, 273 20	.....	.....	29, 273 20
	22	Culverts,	47, 620 10	.....	.....	47, 620 10
	3	Waste weirs,	2, 605 90	.....	.....	2, 605 90
	24	Bridge abutments,	45, 695 10	.....	.....	45, 695 10
	28	Bridge superstructures,	56, 661 00	.....	.....	56, 661 00
			\$1, 663, 508 27	\$14, 862 35	\$14, 862 35	\$1, 648, 645 92

SUMMARY
OF WESTERN DIVISION.

	Estimated cost.	Amount done in 1852.	Total amount done.	Amount remaining to be done.
Eastern subdivision,.....	\$3, 219, 336 05	\$64, 720 35	\$165, 991 86	\$3, 053, 344 19
Middle subdivision,.....	1, 679, 237 02	114, 440 74	147, 144 92	1, 532, 092 10
Western subdivision,.....	2, 653, 140 37	212, 991 35	674, 539 35	1, 978, 601 02
	<u>\$7, 551, 713 44</u>	<u>\$392, 152 44</u>	<u>\$987, 676 13</u>	<u>\$6, 564, 037 31</u>
Work done under contracts of 1851, and not paid for,				46, 696 44
Work not under contract,				108, 974 92
The cost of completing the western division enlargement of Erie canal at contract and estimated prices, on the plans and locations of 1851,				<u>\$6, 719, 708 67</u>

Repairs on the western division enlargement of Erie canal.

WESTERN SUBDIVISION.

Bridge over the locks at Lockport contracted under act chap. 122, Laws of 1852,	\$7,000 00
Superstructure of Erie-street bridge, Buffalo,	
do Ingersoll-street bridge, Albion,	5,000 00
Total,	<u>\$12,000 00</u>

STATEMENT

Showing the amount of work which has been completed during the year 1852, on the repairs of the Champlain canal.

No. of structures.	Character of work.	Estimated cost at contract prices.	Amount	Total amount done.
1	Becker lock,	\$13,710 64	\$5,230 00	\$13,710 64

REPAIRS OF CHAMPLAIN CANAL.

Statement showing the number of structures, character of work, estimated cost at contract prices, amount done in 1852, whole amount done, and amount remaining to be done.

No. of structures.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
2	Combined lock at Whitehall,	\$10,100 00	\$3,870 00	\$9,600 00	\$500 00
1	Becker lock,	13,710 64	5,230 00	13,710 64	.....
2	Combined locks at Whitehall after abandonment,....	28,869 70	200 00	200 00	26,669 70
	Total,	\$50,680 34	\$9,300 00	\$23,510 64	\$27,169 70

STATEMENT

Showing the amount of work which has been completed during the year 1852, on the Black River canal.

Character of work.	Estimated cost at con. prices.	Amt. done in 1852.	Total amt. done.
Turning channel of Mohawk river, and protecting banks of Black River canal,.....	\$545 00	\$100 00	\$545 00
Bridges on sections Nos. 7, 8, 9 and 10.	988 88	128 88	988 88
Watering locks on Black River canal,.	660 00	160 00	660 00
Locks Nos. 38 to 56,.....	2,098 07	118 07	2,098 07
Sections Nos. 9 and 10,	8,871 00	3 13	8,871 00
Culvert and waste weir on sec. No. 28,	2,050 05	140 05	2,050 05
Sections Nos. 26 and 27,	11,693 79	5,073 79	11,693 79
Aqueduct across Sugar river,.....	13,771 28	221 28	13,771 28
Locks Nos. 85, 86, 87, 88, 89 and 90,.	3,627 14	757 14	3,627 14
Locks Nos. 81, 82, 83 and 84, except valve gates,.....	25,262 34	1,582 34	25,262 34
Culverts, sec. 23 to 27 inclusive,	1,537 64	107 64	1,537 64
Section No. 24,.....	216 65	116 65	216 65
Sec. Nos. 28 and 29 south of lock 25,..	2,662 35	442 35	2,662 35
Abutments and wings to road bridge at Rome,	2,829 62	329 62	2,829 62
Locks Nos. 14 to 24, and docking rep.,	2,286 36	136 36	2,286 36
Bridge (draw) at Beach and Hling- worth's,	2,697 94	847 94	2,697 94
Locks Nos. 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13,	1,428 95	98 95	1,428 95
Locks Nos. 71, 72, 73, 74 and 75,.....	4,891 56	761 56	4,891 56
Superstructure of Church-street bridge, Rome,	416 96	56 96	416 96
Locks Nos. 75 to 80,.....	3,412 41	792 41	3,412 41
Totals,.....	<u>\$83,947 99</u>	<u>\$11,975 12</u>	<u>\$83,947 99</u>

TABULAR STATEMENT

Showing the length, number of structures, character of work, estimated cost at contract prices, amount done in 1852, whole amount done, and amount remaining to be done on the Black River canal.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
5.935	16 & 37	Sections.....	\$42,950 00	\$17,185 65	\$17,655 65	\$25,294 35
		Locks and sluices.....	104,280 00	46,466 94	57,296 94	46,983 06
	9	Bridges.....	3,820 00	1,130 00	1,490 00	2,330 00
	3	Culverts.....	1,000 00	0 00	0 00	1,000 00
	3	Dams.....	12,290 00	993 80	993 80	11,296 20
	20	Lock houses.....	8,690 00	410 96	4,570 96	4,119 04
	4	Reservoirs.....	43,990 00	1,472 65	1,472 65	42,517 35
	1	Valve gate.....	190 00	0 00	0 00	190 00
42½		Improvement of Black river.....	129,400 00	499 82	499 82	128,900 18
			\$346,610 00	\$68,159 82	\$83,979 82	\$262,630 18
Of the above amounts there was let Dec. 29th, 1851.						
1.375	1 & 37	Sections.....	\$11,000 00	\$715 65	\$715 65	\$10,284 35
		Lock and sluices.....	16,680 00	941 94	941 94	15,738 06
	5	Bridges.....	1,650 00	0 00	0 00	1,650 00
	3	Culverts.....	1,000 00	0 00	0 00	1,000 00
	3	Dams.....	12,290 00	993 80	993 80	11,296 20
	10	Lock houses.....	3,750 00	410 96	410 96	3,339 04
	4	Reservoirs.....	43,990 00	1,472 65	1,472 65	42,517 35
	1	Valve gate.....	190 00	0 00	0 00	190 00
42½		Improvement of Black river.....	129,400 00	499 82	499 82	128,900 18
			\$219,950 00	\$5,034 82	\$5,034 82	\$214,915 18

Work remaining to be done as shown by the foregoing tables.....\$262,630 18

Work done on contracts let under the law of 1851 (not paid).....5,034 82

Total cost of completing the Black River canal and improvement of Black river at contract prices on plans and locations of 1851.....\$267,665 00

TABULAR STATEMENT

Showing the length, number of structures, character, estimated cost of work under contract, amount done in 1852, whole amount done, and amount remaining to be done, at contract prices on the Oswego canal.

No. of structures.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
11	Locks.....	\$378,730 00	\$83,370 00	\$83,370 00	\$295,360 00
3	do (guard).....	64,323 00	6,570 00	6,570 00	57,753 00
1	Section.....	51,055 00	11,530 00	11,530 00	39,525 00
		\$494,108 00	\$101,470 00	\$101,470 00	\$392,638 00

STATEMENT

Of work not under contract, necessary to complete the locks on the enlarged plan and bring them into use, as contemplated by act, chap. 501, Laws of 1851.

No. of structures.	Character of work.	Estimated cost.	Total.
1	Lift lock.....	\$26,670 00	
2	Guard do.....	50,368 00	
1	Side do at Salina.....	7,750 00	
4	Bridges.....	6,000 00	
15	Sett valve gates.....	8,250 00	\$99,038 00

REPAIRS OF THE OSWEGO CANAL.

No. of structures.	Character of work.	Estimated cost.	Amount done in 1850.	Whole amount done.	Amount remaining to be done.
	Division-street bridge, Syracuse,	\$750 00	\$370 00	\$370 00	\$380 00

BALDWINVILLE SIDE CUT, act chap. 153, Laws of 1850.

1	Guard lock.....	\$2,105 00	\$2,105 00
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REPAIRS CAYUGA AND SENECA CANAL.

1	Composite lock,	\$8,113 00	\$8,113 00
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REPAIRS CHEMUNG CANAL AND FEEDER.

2	Bridges,	\$3,350 00	\$800 00	\$800 00	\$2,550 00
	Docking at Corning,.....	9,000 00	2,160 00	2,160 00	6,840 00

STATEMENT

Showing the amount of work that has been completed during the year 1852, on the Genesee Valley canal.

Character of work.	Estimated cost at contract prices.	Amount done in 1852.	Whole am't done.
Ditches in Sparta,.....	\$3,664 31	\$503 31	\$3,664 31
Sections Nos. 42, 43, 44, 45 and 46,	22,139 31	1,070 31	22,139 31
Sections Nos. 47, 48, 49, 50 and 51,	12,290 08	651 08	12,290 08
Cliff line,	72,535 60	8,797 60	72,535 60
Sections Nos. 57 and 58,	80,000 00	17,294 00	80,000 00
63, 64, 65 and 66, ..	14,789 77	844 77	14,789 77
67, 68 and 69,	29,271 57	183 57	29,271 57
Locks Nos. 17, 18, 19, 30, 37, 38 and 40,	33,682 30	293 22	33,682 30
Locks Nos. 33, 34, 35, 36, 42, 43, 44, 45 and 46,	19,046 90	1,672 90	19,046 90
Lock No. 41,	3,382 48	231 48	3,382 48
Locks Nos. 47, 48, 49, 51, 52, 54, 55, 56 and 57,	26,395 49	2,268 49	26,395 49
Locks Nos. 59, 61, 64, 66, 68, 69, 70 and 71,	21,671 80	1,052 80	21,671 80
Locks Nos. 62, 63 and 65,	13,185 86	299 86	13,185 86
Wisoy creek aqueduct,	7,589 45	133 45	7,589 45
Waste wier on secs. 48 and 49, ..	1,139 54	113 54	1,139 54
Bridges on secs. 52 to 69 inclusive, ..	21,119 38	1,046 38	21,119 38
42 to 51 inclusive, ..	12,956 76	1,001 76	12,956 76
Bridge at foot of lock No. 46, ...	322 96	162 96	322 96
	<u>\$395,183 56</u>	<u>\$37,764 48</u>	<u>\$395,183 56</u>

TABULAR STATEMENT

Showing the length, number of structures, character of work, estimated cost at contract prices, amount done in 1852, w/ole amount done, and amount remaining to be done on the Genesee Valley canal.

Length in miles.	No. of struct.	Character of work.	Estimated cost.	Amount done in 1852.	Whole amount done.	Amount remaining to be done.
27	.....	Sections, 24 chs. feeder and 1 bridge,.....	\$159,788 43	\$60,110 43	\$73,668 43	\$86,120 00
	2	Aqueducts, }	47,860 00	24,340 00	34,355 00	13,505 00
	2	Locks,.... }	246,680 00	122,937 10	161,775 10	84,904 90
	33	Locks and section No. 78,	7,000 00	.....	.....	7,000 00
	35 sets.	Valve gates and fixtures,.....	1,910 00	.....	889 00	1,021 00
	1	Culvert,.....	29,530 00	9,130 00	16,782 00	12,748 00
	.....	Bridges,.....	19,480 00	.....	.....	19,480 00
3.38	.....	Ischua feeder,.....	58,800 00	1,512 16	1,512 16	57,287 84
	.....	Reservoirs,.....	\$571,048 43	\$218,029 69	\$288,981 69	\$282,066 74

Of the above amount there was let December 29th, 1851 :

3	.....	Sections, 24 chs. feeder and 1 bridge,	\$36,750 00	.....	.....	\$36,750 00
	1	Aqueduct,.....	3,860 00	.....	.....	3,860 00
	2	Locks,	27,280 00	\$165 10	\$165 10	27,114 90
	35 sets.	Valve gates and fixtures,.....	7,000 00	.....	.....	7,000 00
	.....	Bridges,.....	1,540 00	.....	.....	1,540 00
	.....	Ischua feeder,.....	19,480 00	.....	.....	19,480 00
3.38	.....	Reservoirs,.....	58,800 00	1,512 16	1,512 16	57,287 84
			\$154,710 00	\$1,677 26	\$1,677 26	\$153,032 74

STATEMENT,

Of work not under contract, on the Genesee Valley canal.

Kind of Work.	Amount.
Ischua reservoir and 62 chains of feeder,	\$50,000 00
Finishing sections 95, 96 and 97,	30,000 00
Dam across the Genesee river near Oramel,	1,500 00
The erection of 20 lock and 10 watch houses,	8,000 00
Change of plan for Oil creek reservoir,	5,900 00
Constructing 850 rods of back ditches on finished canal,	800 00
Lining canal at points on do.....	8,000 00
Four wood culverts on do.....	1,209 00
	<hr/>
	\$105,400 00

Making the whole cost at contract and estimated prices for completing the Genesee Valley canal, including \$1,677.26 not paid for work done under contracts let Dec. 29th, 1851, exclusive of land damages, \$389,144.

(C.)

TABULAR STATEMENT,

Showing the value at contract prices of work done on contracts let Dec. 30th, 1851.

ENLARGEMENT OF ERIE CANAL,

EASTERN DIVISION.

Character of Work.	Amount.	Total.
Section No. 13,	\$244 49	
14,	364 10	
16,	6,423 97	
17,	5,625 40	
35,	567 86	
40,	730 52	
45,	1,727 10	
58,	367 02	
	<hr/>	
Carried forward.....	\$	

Character of Work.	Amount.	Total.
Brought forward,.....		
Section No. 61,.....	800 55	
75,.....	2,134 80	
84,.....	5,816 98	
112,.....	2,165 36	
126,.....	1,226 25	
130,.....	535 80	
131,.....	2,380 95	
132,.....	1,355 64	
134,.....	276 55	
Raising banks of the Champlain canal,.	1,786 62	
	<hr/>	\$34,529 96
<i>Locks.</i>		
Lock No. 2,.....	\$2,545 00	
32,.....	396 35	
38,.....	187 04	
	<hr/>	3,128 39
<i>Aqueducts.</i>		
Printup's aqueduct,.....	\$584 90	
Olstona do	594 70	
Lashers do	727 56	
	<hr/>	1,907 16
<i>Bridge Abutments.</i>		
R'd bridge abutments, sections 15 & 18,	\$573 00	
16 & 17,	434 33	
60, 61 & 62,	182 71	
do. from Sprakers to Fort Plain,	773 59	
do. on sections 78 to 84,.....	1,408 29	
77,.....	832 70	
	<hr/>	4,204 62
<i>Culverts.</i>		
Composite culverts, sec. 111 and 112,	\$1,025 07	1,025 07
Bulkhead and feeder at Rome,.....	1,947 89	1,947 89
Waste weir on section No. 30,.....	498 81	498 81
Section No. 120 (contractor resumed his contract under the Law of 1842),	3,520 00	3,520 00
		<hr/>
		<u>\$50,761 90</u>

MIDDLE DIVISION.

Character of work.	Amount.	Total.
Section No. 137.....	\$2,241 38	
139.....	1,524 09	
142.....	2,065 02	
143.....	881 96	
144.....	486 75	
145.....	1,755 15	
146.....	2,281 42	
147.....	2,922 49	
151.....	3,177 23	
193.....	487 50	
195.....	3,631 60	
197.....	328 16	
199.....	2,490 20	
203.....	748 22	
204.....	1,557 39	
205.....	168 78	
	<hr/>	
Aqueduct, at Chittenango,.....		\$26,747 34
		358 68
		<hr/>
Total,.....		\$27,106 02
		<hr/>

WESTERN DIVISION.

Character of work.	Amount.	Totals.
Section No. 207.....	\$719 00	
210.....	520 00	
211.....	3,912 20	
212.....	1,070 43	
213.....	2,303 53	
217.....	3,679 83	
218.....	929 40	
228.....	320 00	
229.....	1,524 25	
232.....	2,447 98	
246.....	719 13	
256.....	3,797 50	
266.....	527 70	
278.....	50 00	
	<hr/>	
Carried forward,.....	\$	

Character of work.	Amount.	Totals.
Brought forward,.....	\$	
Section No. 282.....	303 72	
300.....	443 48	
316.....	346 02	
317.....	1,051 72	
318.....	3,291 81	
319.....	2,364 79	
320.....	728 96	
322.....	687 24	
325.....	75 00	
327.....	1,504 30	
330.....	62 43	
331.....	296 40	
334.....	136 28	
348.....	1,084 30	
370.....	11,703 64	
		\$46,601 44
Bridge Abutments.		
On section Nos. 262, 266, 210 and 246.	\$95 00	95 00
Total,.....		<u>\$46,696 44</u>

SUMMARY.—ENLARGEMENT OF THE ERIE CANAL.

	Amount.	Total.
Eastern division,.....	\$50,761 90	
Middle do	27,106 02	
Western do	46,696 44	
Total,		<u>\$124,564 36</u>

BLACK RIVER CANAL AND IMPROVEMENT.

Character of Work.	Amount.	Totals.
Delta feeder section,.....	\$715 65	
Guard lock Delta feeder,.....	80 33	
Sluices to locks 34 to 70,.....	861 61	
Dam at High Falls,.....	993 80	
Lock houses,.....	410 96	
North Branch reservoir,	1,472 65	
Improvement of Black river,	499 82	
		<u>\$5,034 82</u>

GENESEE VALLEY CANAL.

Character of work.	Amount.	Total.
Oil Creek reservoir,.....	\$1,512 16	
Lock No. 106,.....	165 10	
	<hr/>	<hr/>
		\$1,677 26

GENERAL SUMMARY.

Character of work.	Amount.	Total.
Enlargement of Erie canal,.....	\$124,564 36	
Black River canal and improvement,.	5,034 82	
Genesee Valley canal,.....	1,677 26	
	<hr/>	<hr/>
Total,.....		\$131,276 44

(D.)

COST OF TRANSPORTATION ON CANALS.

The cost of transportation of coal in 1848 on the Chesapeake and Ohio canal from Cumberland to Georgetown, a distance of 184.4 miles, was \$78.06, or $4\frac{1}{4}$ mills per ton per mile, including the interest on the cost of the boats and fixtures, annual repairs and depreciation on the same, cost of towing, wages of men, cost of loading and unloading.

The cost of transportation of coal on the Schuylkill canal is \$44.54 for 108 miles, or $4\frac{1}{8}$ mills per ton per mile; the cost on the Delaware and Hudson canal is about the same

The cost of all expenses of running, towing and decrease of value of horses, office and personal expenses, and part cost of loading and unloading on the Erie canal in 1852, was $2\frac{9}{10}$ mills per ton per mile. Mr. Seymour, the late State engineer, estimated the whole cost at $3\frac{1}{2}$ mills per ton per mile. The charges for transportation on the Erie canal in 1851 and 1852 (except late in the season) have averaged \$2.50 per ton for down, and \$2.35 per ton for up freight (exclusive of the charge for State tolls), being at the rate of 6.9 and 6.5 mills per ton per mile.

The charges for transportation of coal on the Schuylkill canal in 1852, was \$0.65 for 108 miles, or 6 mills per ton per mile; and on the Delaware and Hudson canal, about $5\frac{1}{2}$ mills per ton per mile. On the later canal they have ascertained that the cost of transportation has been reduced more than forty per cent by enlarging the canal from a capacity for boats of 50 tons to that of 115 tons.

In 1848, the Delaware and Hudson Canal Company determined to enlarge the dimensions of their canal for the purpose of accommodating the increased amount of trade, and to cheapen the cost of transportation. This has been accomplished at an expense of about $2\frac{1}{2}$ millions of dollars.

The engineer of that work, R. F. Lord, Esq., prepared very careful estimates of the saving in the cost of transportation which the enlargement would effect, as follows : "The charge for freight on the old canal which was competent for boats of 50 tons, was \$1 per ton for 108 miles, or nearly one cent per ton per mile. The estimated charge for freighting with the canal enlarged for boats of the following tonnages, was :

"For 100 tons, 65 cents, equal to $5\frac{6}{10}$ mills per ton per mile.

116 tons, 58 cents, equal to $5\frac{4}{10}$ mills per ton per mile.

136 tons, 50 cents, equal to $4\frac{6}{10}$ mills per ton per mile.

"The company determined to enlarge the canal to the last mentioned capacity, which has been done, and boats now carry from 115 to 141 tons, at a saving in the cost of transportation fully equal to that estimated."

COST OF TRANSPORTATION ON RAILROADS.

The cost of transporting coal on the Reading railroad, for several years, was stated at about 6 mills per ton per mile. The cost for 1851 and 1852, is stated at $5\frac{3}{4}$ mills. Major Gwynn in his report on the James River canal for 1852, p. 383, corrects the cost as stated in the report of the Reading road, for 1851, to $6\frac{7}{10}$ mills per ton per mile.

The cost of transporting coal on the Pennsylvania Coal Company's road in 1851-'52, was $1\frac{4}{10}$ cents per ton per mile, and about the same on the Carbondale railroad. The cost of transporting coal on the Baltimore and Ohio railroad, is stated at 1 cent per ton per mile.

The charges for transporting coal on the Reading and Baltimore, and Ohio railroads, has been about $1\frac{1}{2}$ cents per ton per mile ; on the Lykens Valley, Beaver Meadow, and Mine Hill railroads is $2\frac{1}{2}$ cents. On the Schuylkill Valley and Mount Carbon is 3 cents ; and on several other coal roads in Pennsylvania, is from 4 to 5 cents per ton per mile.

CHARGES FOR FREIGHT OTHER THAN COAL, ON RAILROADS.

Columbia, Pa.,	1.6 to 2	cents per ton per mile.
Baltimore and Ohio,	2.2 to 3.9	do. do.

Virginia Central,	2	to 6.1	cents per ton per mile.	
Richmond and Dansville, . . .	2.2	to 7.9	do.	do.
Wilmington and Raleigh, . . .	2	to 9.9	do.	do.
Columbia and Camden,	1.7	to 3.7	do.	do.
Central, Geo.,	1.6	to 7.6	do.	do.
Charleston, S. C.,	1.7	to 6.6	do.	do.
Aver. of the northern roads, .	2.2	to 4.4	do.	do.
Aver. of the Virginia roads, .	3.9	to 6.3	do.	do.
Aver. of the southern roads, .	4.1	to 7.8	do.	do.

The above averages are obtained from elaborate tables prepared by Major W. Gwynn, and given in his report to the James River Canal Company in 1852.

Transportation of freight on the New-York Railroads.

RAILROADS.	1850.		1851.		1852.	
	Earned per ton per mile.	Cost per ton per mile.	Earned per ton per mile.	Cost per ton per mile.	Earned per ton per mile.	Cost per ton per mile.
	cents.	cents.	cents.	cents.	cents.	cents.
Albany and Schenectady.....	6.56	3.96	5.58	2.98	4.27	2.30
Buffalo and Niagara Falls.....			8.15	4.03	9.47	9.99
Buffalo and Rochester.....			3.	1.55	2.80	1.32
Cayuga and Susquehanna.....			7.77	6.16	2.60	1.97
Hudson River.....	8.08	4.10	7.18	2.82	3.10	1.60
Hudson and Berkshire.....	4.38	2.27	4.23	2.02	3.90	2.22
Long Island.....					3.60	7.70
Northern.....	5.70	4.98	2.40	1.44	1.95	1.15
Oswego and Syracuse.....	3.39	2.37	3.05	2.36	3.42	2.62
Rensselaer and Saratoga.....			5.64	3.38	4.36	3.47
Rochester and Syracuse.....	2.68	1.64	4.38	1.53	2.19	1.12
Schenectady and Troy.....			4.99	4.78	3.91	3.75
Syracuse and Utica.....			2.97	1.63	2.97	1.43
Troy and Greenbush.....			10.19	4.59	7.70	3.35
Utica and Schenectady.....	5.37	2.79	4.51	1.81	2.48	0.84
Watertown and Rome.....			4.53	2.01	2.90	1.70
Buffalo, Corning and New-York.....					5.63	2.33
New-York and Erie.....			3.18	1.68	1.95	1.02
New-York and Harlem.....			6.53	4.41		

TABLE D.

Showing the cost, and cost per mile of construction and equipment, and the earnings and cost of freight transportation on the Railroads of the State of New-York, for the year 1852.

No.	RAILROAD.	Length of road & branches	Cost of road and branches.	Cost per mile.	Tons freight carried in the cars.	Tons freight carried one mile.	Earnings from freight.	Cost of freight business.	Earned per ton per mile.	Cost per ton per mile.
1	Albany and Schenectady,	17.00	\$1,774,348 22	\$104,385 13	162,178	2,757,020	\$117,859 94	\$63,476 11	cents. 4.27	cents. 2.30
2	Albany and West Stockbridge,	38.25	1,930,895 01	50,489 08	.....	.....	.....	.....	.....	.....
3	Buffalo and Niagara Falls,	22.00	467,935 97	21,269 81	3,514	77,290	7,319 44	7,721 31	9.47	9.99
4	Buffalo and Rochester,	82.00	2,737,014 29	33,378 22	81,364	5,931,856	166,098 12	78,380 49	2.80	1.32
5	Cayuga and Susquehanna,	35.00	1,070,786 26	30,593 89	65,498	2,021,211	52,666 81	38,545 78	2.60	1.97
6	Hudson River,	144.00	10,527,645 75	73,108 65	65,046	7,643,678	236,805 36	122,176 60	3.10	1.60
7	Hudson and Berkshire,	31.50	824,331 45	26,169 25	38,560	800,118	31,240 60	17,775 06	3.90	2.22
8	Long Island,	84.00	2,446,391 79	29,123 71	49,549	1,610,321	57,998 63	124,006 46	3.60	7.70
9	New-York and Erie,	464.50	27,551,205 71	59,313 68	456,461	96,697,695	1,883,198 76	991,324 24	1.95	1.02
10	New-York and New-Haven,	61.00	4,835,937 14	79,277 63	.....	.....	.....	.....	.....	.....
11	Northern,	119.00	4,933,029 97	41,454 03	181,809	16,594,139	322,951 44	190,623 86	1.95	1.15
12	Oswego and Syracuse,	36.75	607,803 77	16,538 87	78,525	614,491	21,016 43	16,086 82	3.42	2.62
13	Rensselaer and Saratoga,	25.60	774,494 74	30,253 70	50,215	1,326,357	57,836 75	40,031 50	4.36	3.47
14	Rochester and Syracuse,	115.00	6,016,778 17	52,319 81	207,644	12,458,640	273,344 41	140,157 30	2.19	1.12
15	Saratoga and Washington,	54.25	1,832,945 80	33,787 02	.....	.....	.....	.....	.....	.....
16	Schenectady and Troy,	22.00	685,523 39	31,150 15	32,080	657,649	25,741 46	24,676 01	3.91	3.75
17	Syracuse and Utica,	53.00	2,661,477 81	50,216 56	147,367	6,493,350	192,744 23	92,548 39	2.97	1.43
18	Troy and Greenbush,	6.00	294,796 30	49,132 71	62,483	374,899	28,862 84	12,549 78	7.70	3.35
19	Utica and Schenectady,	78.00	4,093,273 11	52,477 86	190,719	14,579,422	361,656 81	122,630 98	2.48	0.84
20	Watertown and Rome,	96.00	1,693,711 00	17,642 82	60,949	3,604,084	104,496 97	61,845 72	2.90	1.70
21	Buffalo, Corning and New-York, .....	.....	.....	.....	10,158	174,917	9,844 05	4,074 97	5.63	2.33
22	Buffalo and State Line,	74.00	1,921,270 28	25,963 11	13,351	577,431	31,530 49	25,907 45	5.46	4.50
23	Canandaigua and Elmira,	46.75	987,627 02	21,125 71	16,331	751,226	12,880 19	15,100 65	1.71	2.01
24	Chemung,	17.36	490,000 00	28,225 80	.....	.....	.....	.....	.....	.....
25	Plattsburg and Montreal,	23.17	349,775 61	15,096 05	.....	.....	.....	.....	.....	.....
26	Saratoga and Schenectady,	22.80	471,567 53	20,682 78	.....	.....	.....	.....	.....	.....
27	Troy and Boston, .....	.....	.....	.....	13,582	360,882	19,124 50	10,209 65	5.17	2.76
Total and averages,		1,768.93	\$81,980,766 09	\$46,344 83	1,987,383	176,115,682	\$4,015,158 23	\$2,205,939 12	2.27	.25

TABLE D.—(CONTINUED.)

Showing the cost, and cost per mile of construction and equipment, and the earnings from freight transportation on the Railroads of the State of Massachusetts, for the year 1851.

No.	RAILROAD.	Length of road and branches.	Cost of road and branches, also equipment.	Cost per mile of road, branches and equipment.	Tons freight carried in the cars.	Tons freight carried one mile.	Earnings from freight.	Earned per ton per mile.
								cents.
1	Berkshire,	21.20	\$600,000 00	\$28,301 88	.....	.....	.....	.....
2	Boston and Lowell,	27.64	1,945,646 68	80,392 42	249,468	6,140,947	\$234,433 13	3.81
3	Boston and Maine,	83.05	4,090,452 48	49,252 86	156,700	4,633,473	198,023 44	4.28
4	Boston and Providence,	53.00	2,840,442 55	53,593 25	121,320	2,554,170	137,590 22	5.38
5	Boston and Worcester,	68.03	4,862,748 45	70,854 55	242,789	9,051,119	330,371 58	3.65
6	Cape Cod Branch,	28.53	633,676 61	22,210 89	32,663	285,372	19,933 05	6.98
7	Cheshire,	53.64	2,777,843 89	51,786 79	78,308	3,599,651	115,271 53	3.20
8	Connecticut River,	52.35	1,801,592 36	34,414 37	64,215	1,557,408	83,014 51	5.33
9	Dorchester and Wilton Branch,	3.25	136,372 77	42,268 54	.....	.....	.....	.....
10	Eastern,	58.07	3,120,391 67	53,735 00	61,952	1,468,484	68,329 15	4.65
11	Essex,	21.22	602,135 75	28,375 86	17,667	317,562	20,336 30	6.40
12	Fall River,	42.24	1,050,000 00	24,857 97	74,999	2,079,599	98,613 45	4.74
13	Fitchburg,	67.78	3,612,486 97	53,297 24	313,713	7,345,035	265,383 58	3.61
14	Fitchburg and Worcester,	13.90	205,409 94	21,830 58	17,371	226,833	12,561 37	5.53
15	Grand Junction,	6.49	919,396 85	141,663 61	.....	.....	.....	.....
16	Harvard Branch,	3.10	25,701 38	8,290 76	.....	.....	.....	.....
17	Lexington and West Cambridge,	6.63	240,367 84	36,254 57	.....	.....	.....	.....
18	Lowell and Lawrence,	12.35	343,467 08	27,811 09	17,640	160,368	6,575 96	4.10
19	Nashua and Lowell,	14.58	651,214 88	44,664 94	128,136	1,537,632	63,562 75	4.13
20	New-Bedford and Taunton,	21.08	510,263 18	24,206 03	38,685	550,553	60,960 19	11.07
21	New-London, Willimantic and Palermo,	65.70	1,450,410 70	22,076 26	.....	.....	.....	.....
22	Norfolk County,	25.97	1,213,451 70	46,725 13	22,367	551,531	23,694 05	4.29
23	Norwich and Worcester,	66.00	2,583,104 50	39,168 25	69,880	3,423,958	145,558 48	4.24
24	Old Colony,	45.00	2,293,534 83	50,967 44	88,342	1,352,910	67,177 00	4.96

25	Peterboro' and Shirley,	14.08	264,115 30	18,758 18	.....	.....	.....	.....	.....
26	Pittsfield and North Adams,	18.65	443,677 68	23,789 68	19,454	301,055	19,482 51	6.47	.....
27	Providence and Worcester,	43.41	1,820,064 63	41,927 31	49,812	1,252,023	84,376 56	6.73	.....
28	Salem and Lowell,	16.88	343,220 65	20,232 91	26,638	539,053	22,502 52	4.17	.....
29	South Reading Branch,	8.37	293,759 65	35,096 73	23,508	199,583	9,688 96	4.85	.....
30	South Shore,	11.05	427,689 25	38,704 90	.....	.....	.....	.....	.....
31	Stockbridge and Pittsfield,	21.93	448,700 00	20,460 55	.....	.....	.....	.....	.....
32	Stony Brook,	13.16	265,762 17	20,194 69	.....	.....	.....	.....	.....
33	Stoughton Branch,	4.04	93,433 29	23,127 05	.....	.....	.....	.....	.....
34	Taunton Branch,	11.67	307,136 29	26,318 44	43,094	446,937	52,375 91	11.71	.....
35	Vermont and Massachusetts,	77.00	3,450,004 53	44,805 25	93,863	1,761,944	91,086 50	5.16	.....
36	Western,	155.40	9,953,758 84	64,052 50	250,766	23,304,050	736,881 84	3.16	.....
37	West Stockbridge,	2.75	41,516 29	15,096 83	.....	.....	.....	.....	.....
38	Worcester and Nashua,	45.69	1,309,564 01	28,661 93	73,901	2,111,960	66,835 69	3.16	.....
Totals and averages,		1,305.57	\$58,074,515 64	\$44,482 11	2,376,356	76,753,220	\$3,035,220 53	8 95	.....

TABLE E.

Of the charges in mills, per ton, per mile, for transportation of freight on the principal Railroads of New-York, and also on the Erie canal, for 1852.

NOTE.—The charges for way freight are taken for a distance less than one-half the length of the respective roads.

ARTICLES.	NEW-YORK & ERIE R. R.				ALBANY & BUFFALO R. R.				WATERTOWN & ROSE R. R.				ALBANY & BUFFALO, ERIE CANAL.			
	444 miles.		Binghamton, 200 miles.		328 miles.		Syracuse, 148 miles.		72 miles.		Albion, 37 miles.		Through.		Way.	
	Through.		Way.		Through.		Way.		Through.		Way.					
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.
Apples, green and dried,.....	29	29	33	33	42	32	44	32	55	55	64	64	16	14	26	.....
Anchor,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....
Ale, in wood,.....	29	29	33	33	26	26	29	27	41	41	59	59	13	14	20	.....
Acids, mineral, in glass,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....
Alcohol, in barrels,.....	29	29	33	33	32	32	29	27	55	55	64	64	16	14	26	.....
Ashes, pot and pearl,.....	22	22	29	29	32	32	29	27	27	27	43	43	13	14	20	.....
Books, boots and shoes, bacon, loose,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....
Buffalo robes,.....	45	45	50	50	42	32	44	32	55	55	64	64	16	14	26	.....
Broom corn, pressed,.....	45	45	50	50	32	32	35	32	55	55	64	64	16	14	26	.....
Barilla, 5 tons,.....	.....	.....	.....	.....	24	24	27	23	.....	.....	.....	.....	13	14	20	.....
Bones, 3 tons, beans and peas, per car load,.....	22	22	29	29	26	26	29	27	.....	.....	.....	.....	13	14	20	.....
Bacon,.....	29	22	33	29	32	32	35	32	41	41	59	59	13	14	20	.....
Beans,.....	22	22	29	29	32	32	35	32	.....	.....	.....	.....	16	14	26	.....
Beef, salted in bbls., 8 tons,.....	23	22	26	24	24	24	27	23	41	41	59	59	13	14	20	.....
Butter, 8 tons,.....	23	23	26	26	26	26	29	27	41	41	59	59	13	14	20	.....
Beef, fresh,.....	29	29	33	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brandy, gin, rum, &c.,.....	29	29	33	33	24	24	27	23	55	55	64	64	16	14	26	.....
Boards, plank and scantling,.....	22	22	29	29	24	24	27	23	.....	.....	.....	.....	13	14	20	.....
Bran or feed,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....
Brick and building stone,.....	17	17	23	23	24	24	27	23	.....	.....	.....	.....	13	14	20	.....
Cabinet ware, boxed, chairs, carriages, packed,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....
China-ware,.....	45	45	50	50	32	32	35	32	55	55	64	64	16	14	26	.....

	43	43	48	48	26	26	27	27	.....	special	rates.						
Cattle and calves, per car load, 8 tons,.....	43	43	48	48	26	26	27	27	.....	special	rates.						
Castings, cheese, cotton in bales,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....	.....
Clover seed, sodfish in bbls.,.....	29	29	33	33	26	32	29	32	41	41	59	59	13	14	20	.....	.....
Coffee,.....	22	29	29	33	32	32	35	32	41	41	59	59	16	14	26	.....	.....
Crockery, in barrels and boxes,.....	22	22	29	29	.....	.....	.....	.....	41	41	59	59	16	14	26	.....	.....
Chain cables, charcoal, coal, mineral,.....	22	22	29	29	24	24	27	23	41	41	59	59	13	14	20	.....	.....
Drugs, in boxes; dry goods, in boxes,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....	.....
Deer skins, packed,.....	29	29	33	33	26	26	29	27	.....	.....	.....	.....	16	14	26	.....	.....
Domestic sheetings, bales,.....	29	29	33	33	32	32	35	32	55	55	64	64	16	14	26	.....	.....
Drugs and dye-woods, in barrels,.....	29	29	33	33	32	32	35	32	41	41	59	59	16	14	26	.....	.....
Dye-woods, in sticks,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....	.....
Eggs,.....	29	29	33	33	32	32	35	32	55	55	64	64	16	14	26	.....	.....
Earthen, or stone ware,.....	22	22	29	29	32	32	35	32	41	41	59	59	16	14	26	.....	.....
Farming tools,.....	45	45	50	50	.....	.....	.....	.....	.....	.....	.....	.....	16	14	26	.....	.....
Feathers and furs, furniture, fruit,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....	.....
Flax, in bales,.....	45	45	50	50	26	26	29	27	41	41	59	59	16	14	26	.....	.....
Fish, pickled, &c., flax and grass seed,.....	29	29	33	33	26	26	29	27	41	41	59	59	13	14	20	.....	.....
Flour, feed, meal, fire wood, posts and rails,.....	22	22	29	29	20	20	29	29	55	55	64	64	13	14	20	.....	.....
Glass-ware,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....	.....
Groceries,.....	29	29	33	33	42	42	44	44	55	55	64	64	16	14	26	.....	.....
Grain,.....	18	18	22	25	24	24	27	23	27	27	54	54	13	14	20	.....	.....
Grass, hay, or straw,.....	22	22	29	29	.....	.....	.....	.....	55	55	64	64	16	14	26	.....	.....
Hams, honey and beeswax,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....	.....
Hair and moss, hollow-ware, horses,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....	.....
Hogs,.....	45	45	50	50	42	42	44	44	41	41	59	59	.....	.....	.....	.....	.....
Hard-ware,.....	29	29	33	33	32	32	35	32	55	55	64	64	13	14	20	.....	.....
Hemp, in bales; hides, dry; hops,.....	29	29	33	33	32	32	35	32	41	41	59	59	13	14	20	.....	.....
Hay, pressed; hemp, manilla and yarn,.....	22	22	29	29	32	32	35	32	41	41	59	59	13	14	20	.....	.....
Heading and staves,.....	22	22	29	29	24	24	27	23	41	41	59	59	13	14	20	.....	.....
Hides, green,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....	.....
Iron-castings, 6,000 lbs.,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....	.....
Iron, bloom, bar, pig, &c., iron ore,.....	17	17	22	22	24	24	27	23	41	41	59	59	13	14	20	.....	.....
Joiners' work,.....	22	22	29	29	24	24	27	23	55	55	67	67	16	14	26	.....	.....
Junk, 6 tons,.....	22	22	29	29	24	24	27	23	41	41	59	59	13	14	20	.....	.....
Lead, in pigs or bars; leather, rolls and boxes,.....	29	22	33	29	32	32	35	32	41	41	59	59	13	14	20	.....	.....
Lead, red or white,.....	29	29	33	33	32	32	35	32	41	41	59	59	13	14	20	.....	.....
Lard and lard oil,.....	17	17	22	22	32	32	35	32	41	41	59	59	13	14	20	.....	.....
Lath, lime and cement,.....	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....	.....
Liquor,.....	.....	.....	.....	.....	24	24	27	23	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lumber, 8 tons; lead, 5 tons, and lime, 8 tons,.....	17	17	22	22	24	24	27	23	.....	.....	.....	.....	13	14	20	.....	.....
Machinery, marble, medicines,.....	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....	.....

TABLE E.—(CONTINUED.)

ARTICLES.	NEW-YORK & ERIE R. R.				ALBANY & BUFFALO R. R.				ROME & WATERTOWN R. R.				ERIE CANAL.			
	Through.		Way.		Through.		Way.		Through.		Way.		Through.		Way.	
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.
Molasses, mahogany, large,	22	22	29	29	26	26	29	27	41	41	59	59	16	14	26	.....
Meal (see flour),									41	41	59	59	13	14	20	.....
Nails, spikes and bolts,	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....
Oysters, in kegs,	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....
Oils,	29	29	33	33	32	32	35	32	41	41	59	59	16	14	26	.....
Paper, stationery,	45	45	50	50	32	32	35	32	55	55	64	64	16	14	26	.....
Poultry,	45	45	50	50	42	42	44	44	55	55	64	64	16	14	26	.....
Paints and dye-stuffs,	29	29	33	33	32	32	35	32	41	41	59	59	16	14	26	.....
Pork and mutton, fresh,	29	22	33	29	32	32	35	32	55	55	64	64	.....	.....	.....	.....
Pork, salted in bbls.,	29	22	33	29	24	24	27	23	41	41	59	59	13	14	20	.....
Potatoes and roots,	22	22	29	29	26	26	29	27	55	55	64	64	13	14	20	.....
Plaster, 8 tons; pitch, 25 bls.,					24	24	27	23	41	41	59	59	13	14	20	.....
Painted floor cloth,									55	41	64	59	16	14	26	.....
Rice,	29	29	33	33	26	26	29	27	55	55	64	64	16	14	26	.....
Rag and straw paper, rope,	29	29	33	33	26	26	29	27	41	41	59	59	16	14	26	.....
Resin, pitch and rigging,	22	22	29	29	26	26	29	27	41	41	59	59	13	14	20	.....
Resin, 25 bbls.; rags, 5 tons,					24	24	27	23	41	41	59	59	13	14	20	.....
Soap, fancy; spirits turpentine, stove furniture,	45	45	50	50	42	42	44	44	55	55	64	64	.....	.....	.....	.....
Shot, in bags,	29	29	33	33	26	26	29	27	41	41	59	59	13	14	20	.....
Soap, common, in boxes,	29	29	33	33	32	32	35	32	55	55	64	64	16	14	26	.....
Salt,	17	17	23	23	24	24	27	23	41	41	59	59	13	14	20	.....
Starch, in barrels,	22	22	29	29	42	32	44	32	41	41	59	59	13	14	20	.....
Steel, in bars or boxes,	17	17	23	23	26	26	29	27	41	41	59	59	13	14	20	.....
Sugar,	22	22	29	29	24	24	27	23	41	41	59	59	16	14	26	.....
Tin ware,	45	45	50	50	32	32	35	32	55	55	64	64	16	14	26	.....

Tea,	29	29	33	33	42	42	44	44	55	55	64	64	16	14	26	....
Tar,	22	22	29	29	26	26	29	27	41	41	50	50	13	14	20	....
Tallow, in bbls.,	17	17	23	23	32	32	35	32	41	41	50	50	13	14	20	....
Timber, tobacco,	17	17	23	23	24	24	27	23	41	41	50	59	13	14	20	....
Venison,	45	45	50	50	42	42	44	44	55	55	64	64	.....	.....	.....	.....
Vinegar, .....	.....	.....	.....	.....	26	26	29	27	55	55	64	64	16	14	20	....
Whiskey,	22	22	29	29	24	24	27	23	.....	.....	.....	.....	.....	.....	.....	.....
Wood,	22	22	29	29	32	32	35	32	41	41	50	50	13	14	20	....

* On the Northern Railroad the charges were as follows, viz:

On through freight, 33 mills per mile, per ton.

On way freight, 65 mills per mile, per ton.

(F.)

COMPARISON

Of the cost of transporting freight from the interior of the United States to the Atlantic sea coast by the various competing routes.

The following table shows the cost from place to place, and the total cost from New-York to each place:

First.—From New-York to Cairo (at the mouth of the Ohio), by water, via. Troy, Buffalo, Lakes Erie, Huron and Michigan, Chicago to Peru by canal, thence to Grafton, St. Louis and Cairo.

Names of places and routes.	No. 1.			
	Distance from place to place in miles.	Cost per ton pr mile, in cents.	Total cost from place to place.	Total cost from N. York.
From New-York to West Troy, Hudson river, adding for loading and other charges in New-York, 10c. per ton,.....	151	2½	\$0 48	\$0 48
From West Troy to Buffalo, Erie canal,.....	363	6	2 18	2 66
From Buffalo to Chicago, lakes; adding for loading and other charges in Buffalo, 10c. per ton,.....	1,000	2	2 10	4 76
From Chicago to Peru, canal; adding for loading and other charges at Chicago, 10c. pr. ton,	100	4	0 50	5 26
From Peru to Grafton, Illinois river; adding for loading and other charges at Peru, 10c. per ton,.....	202	4	0 91	6 17
From Grafton to St. Louis, Mississippi river,	40	3	0 12	6 29
From St. Louis to Cairo, Mississippi river, ..	172	3	0 52	6 81
Total from New-York to Cairo, \$6.81 pr ton,	<u>2,028</u>		<u>\$6 81</u>	

Second.—From New-York to Cairo by water, via. Troy, Buffalo, Toledo, Terra Haute and Evansville,

No. 2.				
From New-York to Buffalo, as per table No. 1,	514	2½&0½	\$2 66	\$2 66
From Buffalo to Toledo, lakes; adding for loading and other charges at Buffalo, 10c. per ton,.....	304	3	1 01	3 67

Carried forward,.....

Names of places and routes.

Distance from place to place in miles. Cost pr ton pr mile, in mile. Total cost from place to place. To'l cost from N. York.

Brought forward,.....

From Toledo to Terra Haute, canal; adding for loading and other charges at Toledo, 10c.

per ton,..... 318 5 \$1 69 \$5 36

From Terra Haute to Evansville, canal,..... 146 5 0 73 6 09

From Evansville to Cairo, Ohio river; adding for loading and other charges at Evans-

ville, 10c. per ton,..... 184 3 0 65 6 74

Total from N. York to Cairo, \$6.74 pr ton, 14 66 \$6 74

Third.—From New-York to Cairo by water, via. Troy, Buffalo, Toledo, Cincinnati, Louisville and Evansville.

No. 3.

From New-York to Toledo as per table No. 2, 818 .. \$3 67 \$3 67

From Toledo to Cincinnati, canal; adding for loading and charges at Buffalo, 10c. per ton, 250 5 1 35 5 02

From Cincinnati to Louisville, Ohio river; adding for loading and charges at Cincinnati, 10c per ton,..... 139 3 0 52 5 54

From Louisville to Evansville, Ohio river,.... 185 3 0 56 6 10

From Evansville to Cairo, Ohio river,..... 184 3 0 55 6 65

Total from N. York to Cairo, \$6.65 per ton, 1,576 \$6 65

Fourth.—From New-York to Cairo by water, via. Troy, Buffalo, Cleveland, Portsmouth, Cincinnati, and thence as per table No. 3 to Cairo.

No. 4.

From New-York to Buffalo as per table No. 1, 514 2½, 6 \$2 66 \$2 66

From Buffalo to Cleveland, lake; adding for loading and charges at Buffalo, 10c. per ton, 194 4 0 87 3 53

From Cleveland to Portsmouth, canal; adding for loading and charges at Cleveland, 10c. per ton,..... 309 5 1 64 5 17

From Portsmouth to Cincinnati, Ohio river; adding for loading and charges at Portsmouth, 10c. per ton,..... 106 3 0 42 5 59

From Cincinnati to Cairo as per table No. 3, 508 3 1 52 7 11

Total from N. York to Cairo, \$7.11 pr ton, 1,631 \$7 11

Fifth.—From New-York to Beaver by water, via Troy, Buffalo, and Cleveland.

No. 5.

Names of places and routes.	Distance from place to place in miles.	Cost pr ton pr mile, in mills.	Total cost from place to place. N. York.	Total cost from place to place. N. York.
From New-York to Cleveland as per table No. 4,	708	...	\$3 53	\$3 53
From Cleveland to Beaver, canal; adding for loading and charges at Cleveland, 10c. per ton,	156	5	0 88	4 41
Total from N. York to Beaver, \$4.41 pr ton,	<u>864</u>		<u>\$4 41</u>	

Sixth.—From the mouth of Delaware bay to Cairo by water, via Havre De Grace, Columbia, Harrisburgh, Pittsburgh and the Ohio river. This route also includes railway carriage from Harrisburgh to Johnstown.

No. 6.

From the ocean to Delaware city,	60	2½	\$0 15	\$0 15
From Delaware city to Black creek, canal; adding for loading and charges at Delaware city, 10c. per ton,	13½	6	0 18	0 33
From Black creek to Havre De Grace, Chesapeake bay,	20	6	0 12	0 45
Havre De Grace to Columbia, canal,	46	6	0 27	0 72
From Columbia to Hollidaysburg, canal; adding for loading and charges at Hollidaysburg, 10c. per ton,	165	6	1 09	1 81
From Hollidaysburg to Johnstown, railroad,	37	20	0 74	2 55
From Johnstown to Pittsburgh, canal; adding for loading and charges at Johnstown, 10c. per ton,	106	6	0 73	3 28
From Pittsburgh to Beaver, Ohio river; adding for loading and charges at Pittsburgh, 10c. per ton,	35	3	0 20	3 48
From Beaver to Portsmouth, Ohio river,	359	3	1 08	4 56
From Portsmouth to Cairo, Ohio river,	614	3	1 84	6 40
Total from the ocean to Cairo, \$6.40 pr ton,	<u>1,455½</u>		<u>\$6 40</u>	

Seventh.—From the capes of Virginia to Cairo by water (that is, assuming the James river and Kanawha canal to be complete), via Richmond, Kanawha river and the Ohio to Cairo.

No. 7.

From the capes of Virginia to Richmond, on the James river; adding for loading and charges, 10c. per ton,	135	2½	\$0 44	\$0 44
Carried forward,				

Distance from
place to place
in miles.

Cost pr
ton pr
mile, in
mills.

Total cost
from place
to place.

To'l cost
from
Ocean

Name of places and routes.

Brought forward,.....				
From Richmond to the head of navigation on the Kanawha river by James river, canal; adding for loading and charges at Rich- mond, 10c. per ton,.....	390	6	2 44	2 88
From head of navigation on Kanawha river, to its mouth,	51	5	0 25	3 13
From mouth of Kanawha river to Portsmouth, Ohio river; adding for loading and charges, 10c. per ton,.....	94	3	0 38	3 51
From Portsmouth to Cairo, Ohio river,	614	3	1 85	5 36
Total from the capes of Virginia to Cairo, \$5.36 per ton,	<u>1,284</u>		<u>\$5 36</u>	

Eighth.—From Baltimore to Cairo by railroad and Ohio river, via Wheeling,
Point Pleasant, then by river as per table No. 6 to Cairo.

No. 8.

From the capes of Virginia to Baltimore, by Chesapeake bay; adding for loading and charges, 10c. per ton,.....	170	24	\$0 53	\$0 53
From Baltimore to Wheeling, railroad; ad- ding for loading and charges at Baltimore, 10c. per ton,.....	380	15	5 70	6 23
From Wheeling to Point Pleasant, Ohio river; adding for loading and charges at Wheeling, 10c. per ton,.....	195	3	0 68	6 91
From Point Pleasant to Portsmouth, Ohio river,	94	3	0 28	7 19
From Portsmouth to Cincinnati, Ohio river, ..	106	3	0 32	7 51
From Cincinnati to Cairo, Ohio river,	508	3	1 52	9 03
Total,.....	<u>1,453</u>		<u>\$9 03</u>	

Ninth.—From Philadelphia to Cairo by canal and railroad, via Columbia, and
then as per table No. 5 to Cairo.

No. 9.

From the ocean to Philadelphia, adding for loading and charges, 10c. per ton,.....	105	24	\$0 36	\$0 36
From Philadelphia to Columbia, canal; adding for loading and charges at Philadelphia, 10c. per ton,	79	5	0 49	0 85
Carried forward,.....				

Name of places and routes.	Distance from place to place in miles.	Cost per ton per mile, in mills.	Total cost from place to place.	Total cost from Ocean
Brought forward,.....				
From Columbia to Pittsburgh, as per table No. 6,.....	308	...	\$2 56	\$3 41
From Pittsburgh to Beaver, Ohio river; adding for loading and charges at Pittsburgh, 10c. per ton,.....	35	3	0 20	3 61
From Beaver to Point Pleasant, Ohio river,..	265	3	0 80	4 41
From Point Pleasant to Portsmouth, Ohio river,	94	3	0 28	4 69
From Portsmouth to Cairo, as per table No. 4,	614	3	1 84	6 53
Total,	<u>1,500</u>		<u>\$6 53</u>	

Comparison of routes from the sea board to the eastern end of Lake Erie, via canals and railroads.

Tenth.—From New-York to Dunkirk by Erie and Ramapo railroad.

No. 10.

From Jersey city to Ramapo, railroad; adding for loading and charges at Jersey city, 10c. per ton,.....	62	15	\$1 03	\$1 03
From Ramapo to Dunkirk, railroad,.....	427	15	6 40	7 43
Total,.....	<u>489</u>		<u>\$7 43</u>	

Eleventh.—From New-York to Buffalo by

Hudson river and canals. See table No. 1, 514 2½, .. \$2 66

Twelfth.—From New-York to Buffalo by Hudson river and Central railroad.

No. 12.

From New-York to Albany, Hudson river; adding for loading and charges in New-York, 10c. per ton,.....	145	2½	\$0 47	\$0 47
From Albany to Buffalo, railroad; adding for loading and charges at Albany, 10c. pr ton,	325	15	4 97	5 44
Total,	<u>470</u>		<u>\$5 44</u>	

Thirteenth.—From New-York to Lake Erie, by Hudson river, Erie and Oswego canals, and Lake Ontario and Welland canal.

No. 13.

From New-York to West Troy, Hudson river; adding for loading and charges at New York, 10c per ton.....	151	2½	\$0 48	\$0 48
From West Troy to Oswego, canals.....	209	6	1 25	1 73
Carried forward,.....				

Names of places and routes.	Distance from place to place in miles.	Cost per ton per mile, in mills.	Total cost from place to place.	Total cost from Ocean.
Brought forward,.....				
From Oswego to the Lake Ontario terminus of the Welland canal; adding for loading and charges at Oswego, 10c per ton.....	149	3	\$0 54	\$2 27
From Lake Ontario to the Lake Erie end of the Welland canal.....	28	6	0 17	2 44
Total	<u>537</u>		<u>\$2 44</u>	

Fourteenth.—From New-York to Port Colbourne (the southern terminus of Welland canal), via Champlain canal, the proposed Caughnawaga Ship canal, the St. Lawrence and the Lakes.

No. 14.

From New-York to Waterford, Hudson river; adding for loading and charges at New York, 10c per ton.....	155	2½	\$0 49	\$0 49
From Waterford to Whitehall, canal; adding for loading and charges at Waterford, 10c per ton.....	61	5	0 41	0 90
From Whitehall to the eastern terminus of the proposed ship canal; adding for loading and charges at Whitehall, 10c per ton.....	160	3	0 58	1 48
From the eastern to the western terminus of the proposed ship canal.....	33	6	0 19	1 67
From the western terminus of the ship canal to the Lake Ontario end of the Welland canal by St. Lawrence and Lake,.....	336	3	1 00	2 67
Including the St. Lawrence canals,.....	33	6	0 19	2 86
Through the Welland canal	28	6	0 17	3 03
Total	<u>806</u>		<u>\$3 03</u>	

Fifteenth.—From Boston to Lake Erie, by Massachusetts, Vermont and Northern railroad to Ogdensburg, thence by St. Lawrence river and Lake Ontario to and through the Welland canal.

No. 15.

From Boston to Rouse's Point by railroad; adding for loading and charges at Boston, 10c per ton.....	302	15	\$4 53	\$4 53
From Rouse's Point to Ogdensburg railroad..	118	15	1 77	6 30
From Ogdensburg to Port Dalhousa (the eastern end of Welland canal); adding for loading and charges at Ogdensburg, 10c per ton.....	282	3	95	7 25
Through the Welland canal.....	28	6	17	7 42
Total,.....	<u>730</u>		<u>\$7 42</u>	

Names of places and routes.

Distance from place to place in miles. Cost per ton per mile, in mills. Total cost from place to place. To'l cost from Ocean.

Sixteenth.—From Quebec to Lake Erie by the St. Lawrence river and the Canadian canals and Lake Ontario.

No. 16.

From Quebec to Montreal, St. Lawrence river	180	3	\$0 54	\$0 54
From Montreal to the Lake Ontario end of Welland canal, excluding St. Lawrence canals; and adding for loading and charges at Montreal, 10c per ton.....	339	3	1 12	1 66
Including St. Lawrence canal.....	41	6	0 25	1 91
Through the Welland canal,.....	28	6	0 17	2 08
Total from Quebec to Lake Erie.....	588		\$2 08	

Seventeenth.—From New-York to Buffalo, by the Erie canal when enlarged.

No. 17.

From New-York to West Troy; Hudson river, see table No. 1.....	151	2½	\$0 48	\$0 48
From West Troy to Buffalo; enlarged canal.	353	4	1 41	1 89
Total from New-York to Buffalo.....	504		\$1 89	

Eighteenth.—From New-York to Lake Erie by Hudson river, Erie and Oswego canals, enlarged.

No. 18.

From New-York to West Troy; as per table No. 1.....	151	2½	\$0 48	\$0 48
From West Troy to Oswego.....	209	4	0 84	1 32
From Oswego to Lake Erie, as per table No. 13	177		0 71	2 03
Total from New-York to Lake Erie...	537		\$2 03	

The taxes which would be necessary to be laid on two millions of tons per annum, passing through the great channels, to pay the interest on the capital expended for the construction of the artificial works, and the annual expense of maintenance, is as follows:

On the routes from Lake Erie by the Welland and St. Lawrence canals; by the Welland, Caughnawaga and Champlain canals; by the Welland, Oswego and Erie canals; and by the present Erie canal, is fifty cents per ton. By the enlargement of the Erie canal, carrying four millions of tons per annum, sixty-three cents, and by the Oswego canal, forty cents per ton.

On the routes from Lake Erie by the central line of railroad, seventy-five cents; by the New York and Erie, and also by the Northern and Vermont roads, one dollar per ton.

On the routes from the Ohio river, by the New York and Ohio canals; the Pennsylvania and by the Virginia canals, seventy cents per ton; by the Pennsylvania and the Baltimore and Ohio railroads, seventy-five cents per ton.

(G.)

NORTH WESTERN STATES.

	Population. 1850.	Area sq'r. miles.	P o p u l a - tion per sq'r.mile.	Products 1850-51.	
				Corn, bushels.	Wheat, bushels.
Ohio,	1,980,408	39,964	49.55	59,078,695	14,487,350
Indiana,	988,416	33,809	29.23	52,964,363	6,214,458
Michigan,	397,654	56,243	7.07	5,641,420	4,925,589
Illinois,	851,470	55,405	15.36	57,646,984	9,414,575
Wisconsin,	305,191	53,924	5.65	1,988,979	4,286,131
Iowa,	192,214	50,914	3.77	8,656,799	1,530,581
Missouri,	382,043	67,380	10.12	36,214,537	2,981,652
New-York,	3,097,394	46,200	67.04	17,858,400	13,121,498

Value of imports and exports of American cities.

	Boston.	New-York.	Philadelphia.	Baltimore.	United States.	Canada, east and west.
Imp'ts 1850	\$28,656,163 30	\$116,667,558 00	\$12,065,834 00	\$6,024,201 00	\$173,509,526 00	\$16,982,068 00
" 1851	30,508,139 00	144,454,016 00	14,168,618 00	6,648,774 00	207,965,024 00	23,250,440 00
Exp'ts 1850	9,141,652 00	47,580,357 00	4,510,606 00	6,944,615 00	144,375,726 00	10,679,992 00
" 1851	10,498,180 00	79,857,315 00	5,356,036 00	5,635,786 00	188,967,259 00	13,262,376 00

STATISTICS

Of the Western Lakes and Canada, chiefly extracted from Mr. Andrews' Report to the Secretary of the Treasury.

LAKE ONTARIO.

180 miles long; area 6,300 square miles; elevation 232 feet above the sea. The value of commerce on this lake in 1851, was thirty millions of dollars, and its licensed tonnage 38,000 tons.

LAKE ERIE.

265 miles long; elevation 565 feet; value of commerce \$209,712,520; tonnage 138,852.

St. Clair 20 miles long.

Lakes north and west of Lake Erie; commerce sixty millions of dollars; tonnage 30,000.

Huron 260 miles long; elevation 596 feet.

Michigan 360 do., area 16,981 square miles.

Superior 400 do., elevation 600 feet.

The total quantity and value of agricultural products exported to all countries from the United States.

Wheat, bushels,.....	1,026,725	\$1,025,733 00
Flour, barrels,.....	2,202,335	10,524,331 00
Corn, bushels,.....	3,426,811	1,762,549 00
Indian meal, barrels,.....	203,622	622,866 00
Other grain, bread, &c.,.....		520,758 00
Total,.....		<u>\$14,456,236 00</u>

*Some of the principal articles of export from the port of New-York
in 1851 and 1852.*

	1851.		1852.
Ashes, pot and pearl, barrels,....	23,730	....	17,061
Beef, tierces,.....	15,162	....	15,611
“ pounds,.....	16,507	....	23,341
Bread, pounds,.....	25,815	....	28,300
Candles, mould, boxes,.....	34,532	....	64,326
Cheese, pounds,....	7,612,300	....	1,222,500
Coal, tons,.....	4,804	....	33,026
Corn, bushels,.....	1,669,961	....	751,404
“ meal, pounds,.....	37,482	....	34,386
Cotton, bales,.....	267,781	....	328,447
Domestic cotton, cases,.....	38,480	....	51,096
Flour, wheat, pounds,.....	1,195,115	....	1,192,216
Hams, pounds,.....	3,569,100	....	1,379,900
Lard, kegs,.....	131,353	....	93,823
Lead, pigs,.....	12,108	....	15,675
Leather, sides,.....	12,909	....	12,672
Boards, &c., feet,.....	4,434,000	....	9,851,000
Shooks, number,.....	82,919	....	195,145
Staves, number,.....	10,456,000	....	9,292,000
Nails, kegs,.....	7,720	....	6,898
Turpentine, pounds,	146,547	....	173,124
Rosin, “	160,667	....	20,092
Tar, “	22,424	....	14,915
Oil cake and meal, tons,.....	4,579	....	7,371
Lard oil, gallons,.....	431,645	....	39,982
Pork, pounds,.....	56,284	....	37,069
Rye, bushels,.....	6,850	....	249,083
Soap, boxes,.....	55,354	....	42,087
Wheat, bushels,.....	1,341,929	....	2,890,702
Beans and peas, bushels,.....	10,644	....	22,767

TABLE

Exhibiting the flour and wheat exported from Canada in 1850 and 1851, for the years ending January 1st.

EXPORTED TO AND THROUGH.	1850.		1851.	
	Flour, barrels.	Wheat, bushels.	Flour, barrels.	Wheat, bushels.
Buffalo,.....	19,244	66,001	10,869	101,655
Oswego,.....	260,872	1,094,444	259,875	670,202
Ogdensburgh,.....	32,999	.....	30,609	18,195
Lake Champlain,	90,988	192,918	11,940	626
Total exported inland to the United States,.....	404,103	1,353,363	313,284	790,678
Montreal and Quebec,.....	280,618	88,465	371,610	161,312
Total exported,.....	684,721	1,441,828	684,894	951,990
Decrease in inland export to the United States,.....			90,819	562,695
Increase in sea export from Canada,.....			90,992	72,847

Total quantity of flour and wheat imported into the United States from Canada, for the year ending June 30, 1852.

Wheat, bushels,.....	870,889.....	value,.....	\$609,681
Flour, cwt.,.....	496,201.....	do	1,008,928
Rye, oats, &c.,.....			203,570
Total,.....			<u>\$1,802,179</u>

Of the above there was exported to England, viz :

Wheat, bushels,.....	427,615.....	value,.....	\$455,204
Flour, cwt.,.....	343,533.....	do	924,079
Total,.....			<u>\$1,379,283</u>

Exports from Canada to the United States, giving the principal articles and values for the year 1851.

Articles.	Values.
Ashes,.....	\$65,992
Lumber,.....	766,628
Shingles,	20,732
Cattle of all kinds and sizes,.....	140,176
Horses,.....	185,848
Wool,	41,896
Wheat,.....	491,760
Flour,	1,181,484
Barley and rye,.....	75,596
Beans and peas,.....	45,588
Oats,	135,708
Butter,.....	38,004
Eggs,	38,008
Unenumerated,.....	1,705,664
Total,.....	<u>\$1,929,084</u>

Imports into Canada from the United States, giving the principal articles and values for the year 1851.

Articles.	Values.
Tea,.....	\$893,216
Tobacco,	403,860
Cotton manufactures,.....	565,124
Woollen do	439,260
Hardware do	318,844
Woodenware,	53,724
Machinery,.....	85,768
Boots and shoes,.....	42,592
Manufactures of leather,...	47,388
Hides,	89,204
Tanned leather,.....	126,232
Oil, not palm,.....	47,804
Paper,	32,996
Rice,	19,920
Sugar,	278,468
Molasses,	19,296
Salt,	79,816
Glass,.....	18,828
Coal,.....	38,652
Furs,	44,264
Manufactures of silk,.....	80,768
Manufactures of India rubber,.....	53,961
Dye stuffs,.....	12,680
Coffee,.....	116,988
Prints,.....	81,144
Fish,	17,544
Unenumerated,	4,780,372
Total,.....	<u><u>\$8,788,712</u></u>

Agricultural abstract—Upper Canada, 1851. Lands, produce, live stock and domestic manufactures :

Number of persons occupying lands,.....	99,860
Of whom those held 20 to 50 acres,.....	18,467
Of do do do 50 to 100 do	48,027
Of do do do 100 to 200 do	18,421
Number of acres held by the above.....	9,823,233
do of do under cultivation,.....	3,697,724
do of do do crops in 1851,.....	2,274,586
do of do do pasture,.....	1,367,649
do of do wild or under wood,.....	6,125,509
do of do under wheat,.....	782,115
do of do do peas,.....	192,109
do of do do oats,	421,684
do of do do buckwheat,.....	44,265
do of do do maize,	70,571
do of do do potatoes,	77,672
do of do do other crops fallow and idle,.	600,151
Produce in bushels—wheat,.....	12,692,852
do in do peas,	2,873,394
do in do oats,.....	11,193,844
do in do maize,.....	1,606,513
do in do potatoes,	4,987,475
do in do turneps,.....	3,644,942
do in tons hay,	681,682
do in lbs. tobacco,.....	764,476
do in do wool,.....	2,699,764
do in do maple sugar,.....	3,581,505
do in yards fulled cloth,.....	527,466
do in do flannel,	1,169,301
Pounds of butter,.....	15,976,315
Pounds of cheese,.....	2,226,776
Barrels of beef,.....	817,746
do of pork,.....	528,129

TONNAGE OF THE ST. LAWRENCE CANAL.

	1850.	1851
Forest,.....	124,949	232,073
Vegetable food,.....	80,688	98,699
Farm stock,.....	1,261	1,390
Other agricultural produce,.....	8,511	9,535
Merchandise, &c.,.....	24,069	26,679
Manufactures,	48,625	79,024
Total,.....	<u>288,103</u>	<u>450,400</u>
Passengers,	35,932	33,986
Boats,.....	6,169	7,626
Total tonnage of vessels,.....	460,180	545,598

St. Lawrence canal—down trade :

Flour, lbs,.....	643,352	731,412
Wheat, bushels,.....	415,510	654,731
Corn, bushels,.....	75,480	122,310

Up trade :

Railroad iron, lbs.,.....	39,179,840	61,900,160
Nails and spikes, lbs.,.....	20,742,400	25,527,040
Pig and scrap iron, lbs.,.....	22,077,440	22,723,120
Stone and glass ware, lbs.,.....	4,079,040	5,723,838
Coal, tons,	1,282	2,468
General merchandise, tons,.....		28,913,920
Total movement in tons,.....	288,103	450,400
Gross tolls received, dollars,.....		85,104

WELLAND CANAL.

Forest, tons,..	107,335	249,644
Vegetable food, tons,.....	145,769	240,112
Farm stock, tons,.....		37
Other agricultural products, tons,..	13,165	14,672
Merchandise, &c., tons,.....	3,424	41,406
Manufactures, tons,.....	99,090	145,756
Total,.....	<u>399,600</u>	<u>691,657</u>

	1850.	1851.
Passengers,	1,938	4,758
Boats of all kinds,	4,761	4,916
Total tonnage of vessels,	587,100	700,168

Landing articles.

Down Trade :

Wheat, bushels,	3,232,986	4,326,336
Corn, bushels,	575,920	1,553,800
Flour, barrels,	396,420	525,170
Coal, tons,	5,053	6,462
Hams and produce of hogs, lbs.,	3,982,720	8,485,120

Up Trade :

Railroad iron, lbs.,	75,803,840	156,784,320
Nails and spikes, lbs.,	16,486,400	26,093,760
General merchandise, lbs.,	17,958,080	24,064,320
Sugar, molasses and coffee, lbs.,	7,781,760	19,350,320
Pig and scrap iron, lbs.,	6,648,320	14,519,680
Total movement in tons,	399,600	691,627
Gross tolls received, dollars,	151,703	201,841
do do in 1852, dollars,		242,000

(K.)

Showing the quantity of the different classes of freight which has been shipped and delivered at the termini; also, that which was carried through; and the total quantity which was transported on the railroads of New-York during the year 1852.

NORTHERN RAILROAD.

ARTICLES.	Total tons carried.	Tons carried from Lake Ontario towards tide water.		Tons delivered at Lake Champlain.	Tons carried from Lake Champlain towards Lake Ontario.		Total tons delivered at Ogdensburgh.
		Tons sent from Ogdensburgh.	Tons of through freight.		Tons sent from Lake Champlain.	Tons of through freight.	
The forest,.....	46,310	343	342	32,016	17	7	720
Product of animals,.....	7,412	4,526	4,127	6,499	227	218	335
Vegetable food,.....	83,863	81,486	80,044	81,863	78	2	217
Other agricultural products,.....	14,344	11,517	11,105	12,839	343	33	404
Manufactures,.....	7,712	2,377	1,637	2,871	3,682	2,668	2,752
Merchandise,.....	17,682	127	35	69	16,946	13,228	13,244
Other articles,.....	4,483	318	106	1,129	1,872	608	1,140
Total,.....	181,806	100,694	97,396	137,106	23,165	16,764	18,812

K.—(CONTINUED.)
OSWEGO AND SYRACUSE RAILROAD.

ARTICLES.	Total tons carried.	Tons shipped and carried from Oswego towards tide water.		Total tons delivered at tide water.	Total shipped and carried from tide water to Lake Ontario.	
		Total shipped at Oswego.	Total through fr't carried to tide water.			Total through fr't carried to Oswego.
The forest,	14,495	3,321	3,052	3,052	.....	.....
Product of animals,	464	103	99	99	.....	.....
Vegetable food,	4,443	976	893	893	.....	.....
Other agricultural products,	130	29	27	27	.....	.....
Manufactures,	510	103	101	101	.....	209
Merchandise,	1,839	468	401	401	.....	803
Other articles,	1,236	698	359	359	.....	391
Total,	23,117	5,708	4,932	4,932	.....	1,403

K.—(CONTINUED.)

BUFFALO AND NIAGARA FALLS RAILROAD.

ARTICLES.	Total tons carried.	Total tons shipped and car- ried from and towards tide water.		Total tons delivered at Niagara Falls	Total tons shipped and car- ried from tide water.		Total tons delivered at Buffalo.
		Total shipped at Buffalo.	Total through freight.		Total ship- ped at Nia- gara Falls.	Total through freight.	
The forest.....	245	244 $\frac{1}{2}$	244 $\frac{1}{2}$	244 $\frac{1}{2}$	00	00	00
Products of animals.....	290	289	289	289	90	90	90
Vegetable food.....	366	92 $\frac{1}{4}$	92 $\frac{1}{4}$	92 $\frac{1}{4}$	274	274	274
Other agricultural products.....	361	120 $\frac{1}{4}$	120 $\frac{1}{4}$	120 $\frac{1}{4}$	241	241	241
Manufactures.....	596	397	397	397	198	198	198
Merchandize.....	1,199	832	832	832	366	366	366
Other articles.....	457	305	305	305	152	152	152
Totals.....	3,514	2,280	2,280	2,280	1,321	1,321	1,321

K.—(CONTINUED.)

NEW YORK AND ERIE RAILROAD.

ARTICLES.	Total tons carried.	Total tons shipped and carried from Lake Erie towards tide-water.		Total tons delivered at tide water.	Total tons shipped and carried from tide water.		Total tons delivered at Lake Erie.
		Tons shipped at Dunkirk.	Total through freight carried.		Total shipped at New-York pier and Newburgh.	Total through freight carried.	
The forest	76,909	694	565	31,328	67	62	4,632
Product of animals.....	75,943	22,599	18,658	61,240	78	77	145
Vegetable food.....	56,930	20,117	7,150	24,245	480	480	613
Other agricultural products.....	2,420	1,129	1,058	1,298	199	198	208
Manufactures	74,848	1,448	436	17,440	8,352	2,516	9,866
Merchandise.....	50,688	879	314	2,093	14,062	14,035	14,422
Other articles.....	118,724	708	276	3,189	1,246	1,022	3,179
Total.....	456,462	47,574	28,457	140,833	24,484	18,390	33,065

K.—(CONTINUED.)

ALBANY AND SCHENECTADY RAILROAD.

ARTICLES.	Tons shipped at Albany for the west and north.	Tons delivered at Albany from the west and north.	Total movement of freight over the Albany and Schenectady Railroad.
The forest.....	100	3,130	3,230
Product of animals.....	1,311	54,220	55,531
Vegetable food.....	.....	32,752	32,752
Other agricultural products.....	1,030	1,785	2,815
Manufactures.....	3,001	9,107	12,108
Merchandise.....	29,775	.....	29,775
Other articles.....	12,449	13,518	25,967
Total.....	47,666	114,512	162,178

K.—(CONTINUED.)

TROY AND SCHENECTADY RAILROAD.

ARTICLES.	Total tons carried.	Tons carried from Schenectady towards tide water.		Total tons delivered at Troy.	Tons carried from Troy towards Lake Erie.		Total tons delivered at Schenectady.
		Tons sent from Schenectady.	Tons of through freight.		Tons sent from Troy.	Tons of through freight.	
The forest.....	3,169	2,525	2,525	2,525	644	644	644
Product of animals.....	10,226	9,486	9,486	9,486	742	742	742
Vegetable food.....	8,335	.....	.....	.....	.....	.....	.....
Other agricultural products.....	2,084	10,370	10,370	10,370	48	48	48
Manufactures.....	2,077	1,320	1,320	1,320	707	707	707
Merchandise	3,041	222	222	222	2,819	2,819	2,819
Other articles.....	3,199	1,966	1,966	1,966	1,233	1,233	1,233
Total.....	32,131	25,889	25,889	25,889	6,193	6,193	6,193

K.—(CONTINUED.)

ALBANY AND WEST STOCKBRIDGE RAILROAD.

ARTICLES.	Total tons carried.	Tons shipped and carried towards Boston.		Total tons delivered at State Line and to other roads.	Total shipped and carried from State Line, including that received from other roads.		Total tons delivered at Albany.
		Total shipped at Albany.	Total through freight carried to State Line.		Total shipped at State Line and from the other roads.	Total through freight carried to Albany.	
The forest.....	7,342	7,280	7,270	7,321	.....	.....	.....
Product of animals.....	21,703	20,610	20,605	21,429	1,700	1,000	1,700
Vegetable food.....	81,418	80,492	80,472	80,572	2,990	2,880	2,990
Other agricultural products.....	5,474	1,900	1,895	3,829	1,860	1,950	1,950
Manufactures	25,985	9,990	9,970	10,730	9,890	9,785	9,785
Merchandise	6,163	2,997	2,982	3,102	4,150	4,150	4,150
Other articles	10,238	.....	9,098	9,201	300	366	300
Totals.....	158,323	123,269	132,292	136,184	20,890	20,131	20,875

(N.)
COMPARISON

Of the articles shipped on all the railroads, subject to toll, from 1848 to 1852 (both years inclusive). Tonnage for 1851 is estimated, as no tolls were paid in December.

ARTICLES.	Tons shipped in 1848.	Tons shipped in 1847.	Increase for '49. Per cent.	Tons shipped in 1850.	Increase for '50. Per cent.	Tons shipped in 1851.	Increase for '51. Per cent.
Forest,	1,409	4,522	221	8,795	94	8,161	.....
Animals,	9,349	13,859	48	29,372	111	33,847	.....
Vegetables,	17,842	18,543	4	17,130	Dep.	20,039	.....
Other agricultural products,	1,645	2,139	30	2,525	18	2,187	.....
Manufactures,	5,315	6,815	28	10,908	60	12,384	.....
Merchandise,	13,715	20,445	49	30,368	48	32,739	.....
Other articles,	8,274	15,353	85	14,714	4	25,349	.....
Total,	57,549	81,676	42	113,812	37	134,706	.....
						15,294	32
						150,000	.....

M.—(CONTINUED.)
COMPARISON

Of tons moved upon the Albany and Schenectady railroad, from 1849 to 1853.

ARTICLES.	Tons moved up- on the road in 1849.	Tons moved up- on the road in 1850.	Increase for '50. Per cent.	Tons moved up- on the road in 1851.	Increase for '51. Per cent.	Tons moved up- on the road in 1852.	Increase for '52. Per cent.
Forest,.....	1,679	2,330	38	1,880	D.	3,230	71
Animals,.....	15,409	18,050	19	29,415	62	55,531	88
Vegetables,.....	6,924	3,265	D.	8,873	171	32,752	269
Other agricultural products,....	1,101	1,113	1	1,124	1	2,815	140
Manufactures,.....	3,962	3,018	D.	4,801	59	12,108	152
Merchandise,.....	16,230	18,504	14	32,240	74	29,776	D.
Other articles,.....	5,956	16,732	180	13,726	D.	25,966	89
Total,.....	51,261	63,012	22	92,059	46	162,178	76

M.—(CONTINUED.)

COMPARISON

Of tons moved upon the Utica and Schenectady railroad, from 1849 to 1853.

ARTICLES.	Tons moved upon the road in 1849.	Tons moved upon the road in 1850.	Increase for '50 Per cent.	Tons moved upon the road in 1851.	Increase for '51 Per cent.	Tons moved upon road in 1852.	Increase for '52 Per cent.
Forest,.....	1,149	6,201	439	4,849	D.	6,799	40
Animals,	4,540	27,955	515	44,105	57	70,143	59
Vegetables,.....	4,341	13,337	207	16,527	24	43,021	166
Other agricultural products,.....	830	2,250	171	1,460	D.	5,499	276
Manufactures,.....	4,754	11,118	133	7,923	D.	14,135	77
Merchandise,	4,455	25,937	482	30,553	17	33,853	10
Other articles,.....	6,608	11,896	80	10,234	D.	17,269	67
Total,.....	26,677	98,695	269	115,751	17	190,719	

APPENDIX L.

Some of the leading articles imported into Boston in 1852.

Flour.

From New-York,	55,969
Albany,.....	12,275
Western railroad,.....	222,916
Other railroads,.....	227,643
Alexandria and Georgetown,.....	38,890
Richmond,	69,322
Fredericksburg,.....	31,626
Other ports in Virginia,.....	1,860
New-Orleans,	66,418
Baltimore,.....	44,878
Philadelphia,.....	14,189
Delaware,.....	13,611
Connecticut,.....	1,000
All other sources,.....	463
<hr/>	
Total for 1852,.....	641,070
1851,.....	702,742
1850,	755,742
1849,.....	1,042,109
1848,.....	940,737

Grain.

	Corn.	Oats.	Rye.	Shorts.
1852,.....	2,061,654	727,700	12,758	180,460
1851,.....	2,162,268	500,264	24,073	111,751
1850,	2,190,173	291,896	58,815	47,456
1849,.....	3,002,593	506,279	51,291	64,035
1848,.....	3,748,509	439,725	75,484	41,732

Coal.

Total for 1852,.....	432,061 tons.
1851,.....	356,758 do
1850,.....	289,181 do
1849,.....	262,632 do
1848,.....	274,902 do

Cotton.

Total arrivals of cotton at Boston for five years as follows :

1852,.....	276,887 bales.
1851,.....	203,652 do
1850,.....	196,582 do
1849,.....	269,813 do
1848,.....	230,568 do

The largest imports are from the port of New-Orleans. Total from that port in 1852, 127,796 bales.

TABLE M.—2.

A statement of the tons and value of articles transported on the Canals and the Railroads paying tolls for the years 1848 to 1851, inclusive.

1848.						
ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,	421	210	\$1,038,127	\$566,655	\$2,465 86	\$2,405 02
Boards and scantling,	556,075	427	3,590,730	2,047	6 53	4 79
Shingles, timber, staves, wood,	525,893	64	1,568,606	742	2 81	11 59
Ashes, pot and pearl,	10,491	708	1,081,887	50,322	103 12	71 92
Total of the forest,	1,086,880	1,409	\$7,219,250	\$558,766	\$6 64	\$396 56
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs,						
Pork, in the hog,		3,329		\$332,871		\$99 99
Pork,	18,768	998	\$1,072,068	11,976	\$51 79	12 00
Beef,	11,411	422	560,007	15,826	49 12	37 49
Bacon,	4,981	552	491,542	88,374	98 86	160 09
Cheese,	21,863	1,073	2,583,091	139,517	118 66	130 02
Butter,	11,665	1,654	3,017,561	496,051	258 68	299 99
Lard, lard oil, tallow,	5,330	96	687,811	15,291	129 04	159 28

Wool,	5,653	816	2,944,136	522,080	520 80	635 87
Hides,	5,107	409	880,169	81 880	172 34	200 19
Total products of animals,	84,768	9,349	\$12,246,833	\$1,705,862	\$144 46	\$182 14
VEGETABLE FOOD.						
Flour,	393,961	14,204	\$18,165,807	\$689,976	\$46 11	\$48 57
Wheat, rye, corn, corn meal, barley, oats, other grain, ..	396,666	1,665	10,685,959	44,344	26 91	25 63
Brn and ship stuff,	21,621	320	251,213	2,055	11 61	6 42
Peas and beans,	2,524	1,036	72,415	46,434	25 63	44 82
Potatoes,	3,803	23	50,170	391	13 17	17 00
Dried fruit,	1,216	594	138,825	71,326	114 16	120 07
Total vegetable food,	820,091	17,842	\$29,364,327	\$854,526	\$25 80	\$47 89
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,	3,427	711	\$446,900	\$113,815	\$130 40	\$160 07
Unmanufactured tobacco,	1,532	61	358,149	7,576	233 79	129 91
Hemp, grass and clover seed,	1,139	671	145,168	80,460	127 45	119 91
Flax seed,	2,007	80	78,184	3,210	38 55	40 12
Hops,	860	122	211,625	24,475	245 38	200 61
Total, all agricultural products,	8,965	1,645	\$1,239,426	\$229,336	\$138 25	\$139 42
Total, agriculture,	913,824	28,836	\$42,852,686	\$2,787,724	\$46 90	\$96 74
MANUFACTURES.						
Domestic spirits,	10,077	2,016	\$510,940	\$143,996	\$50 73	\$71 42
Beer, linseed oil, oil, meal and cake, starch,						
Leather, furniture,	10,566	912	2,237,239	299,428	211 73	327 33
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines and parts thereof,	41,674	200	1,353,511	7,203	32 47	36 01
Iron ware,	10,847	455	800,701	22,732	73 81	49 96
Domestic woollens,	553	1,068	1,089,885	2,135,597	1,969 01	1,999 51
Domestic cottons,	1,408	624	686,099	249,767	487 28	400 26
Domestic salt,	129,702	37	755,602	335	5 82	9 05
Foreign salt,						
Total manufactures,	202,781	5,315	\$7,433,957	\$2,860,058	\$36 66	\$537 92

TABLE M.—2, 1848.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
MERCHANDISE.						
At 8 mills,						
Sugar, molasses, coffee, nails and spike, iron, railroad }						
iron, steel, sheet iron, tin, crockery and glass ware, }						
Oysters and clams,						
Total merchandise,	261,458	13,715	\$76,945,463	\$4,884,841	\$294 29	\$356 17
Other articles,	331,287	8,274	\$5,637,301	\$781,696	\$17 02	\$94 41
Grand total,	2,796,230	56,249	\$140,086,159	\$11,872,085	\$50 10	\$211 06

TABLE M.—2.—(CONTINUED.)

1849.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,	745	190	\$1,617,129	\$475,402	\$2,157 20	\$2,502 11
Boards and scantling,.....	610,147	1,693	4,411,651	15,237	7 23	9 00
Shingles, timber, staves, wood,.....	482,776	492	1,433,068	4,317	2 97	8 77
Ashes, pot and pearl,.....	11,272	2,147	1,209,209	279,110	107 27	120 00
Total of the forest,	1,104,940	4,522	\$8,671,057	\$774,066	\$7 75	\$168 74
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs,.....						
Pork in the hog,		5,218		\$626,181		\$120 00
Pork,	18,183	1,051	\$1,217,585	67,301	\$66 96	64 03
Beef,	18,464	298	950,810	22,368	51 49	75 06
Bacon,	4,684	339	910,429	40,703	111 16	120 06
Cheese,	20,724	1,778	2,457,208	231,133	118 56	129 88
Butter,	11,053	2,026	3,871,443	567,352	259 88	280 23
Lard, lard oil, tallow,.....	4,940	65	719,630	9,123	145 67	140 35
Wool,	8,330	2,289	4,945,484	1,464,802	593 70	683 61
Hides,	5,476	795	1,144,676	158,948	190 75	203 40
Total products of animals,.....	91,854	13,859	\$14,727,285	\$3,187,913	\$160 22	\$230 02
VEGETABLE FOOD.						
Flour,	417,349	16,393	\$18,581,311	\$758,955	\$44 52	\$46 29
Wheat, rye, corn, corn meal, barley, oats, other grain,...	462,417	742	10,839,924	26,464	23 44	35 66
Bran and ship stuff,	26,828	56	303,202	670	11 30	11 96

TABLE M.—2.—1849.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON.	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
Peas and beans,	4,450	715	\$100,843	\$23,841	\$23 66	\$33 34
Potatoes,	6,140	138	80,749	2,292	10 19	16 60
Dried fruit,	544	499	99,184	99,744	182 32	199 68
Total vegetable food,	918,528	18,543	\$13,005,713	\$911,966	\$14 18	\$49 18
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,	3,157	422	\$583,358	\$78,089	\$183 10	\$185 04
Unmanufactured tobacco,	2,436	62	559,123	15,542	229 56	250 69
Hemp, grass and clover seed,	1,811	1,326	228,572	159,081	126 21	119 97
Flax seed,	1,482	43	51,553	1,919	34 71	44 62
Hops,	991	286	252,488	50,029	254 78	279 82
Total all agricultural products,	9,877	2,139	\$1,675,094	\$334,660	\$169 59	\$156 45
Total agriculture,	1,020,259	34,541	\$46,408,092	\$4,434,539	\$45 48	\$125 77
MANUFACTURES.						
Domestic spirits,	12,399	2,463	\$647,678	\$123,145	\$52 23	\$49 99
Beer, linseed oil, oil, meal and cake, starch,						
Leather, furniture,	10,951	1,710	2,460,941	477,117	224 65	279 01
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines and parts thereof,	33,216	181	983,892	5,694	29 62	31 45
Iron ware,	10,009	550	657,882	33,018	65 76	60 03
Domestic woolens,	631	1,103	1,191,052	1,875,276	1,887 56	1,700 15
Domestic cottons,	1,380	735	617,886	411,331	447 74	559 63
Domestic salt,	135,404	73	624,549	697	4 61	9 30
Foreign salt,						
Total manufactures,	203,990	6,815	\$7,183,930	\$2,926,260	\$35 21	\$420 94

MERCHANDISE.

At 8 mills, .....	.....	.....	.....	.....	.....	.....
Sugar, molasses, coffee, nails and spike, iron, railroad iron, steel, sheet iron, tin, crockery and glass ware, ...	.....	.....	.....	.....	.....	.....
Oysters and clams, .....	.....	.....	.....	.....	.....	.....
Total merchandise,	255,455	20,455	\$77,094,282	\$9,705,182	\$301 78	\$474 69
Other articles,	300,088	15,353	\$5,374,924	\$582,168	\$17 01	\$37 92
Grand total,	2,894,732	81,670	\$144,732,285	\$18,422,215	\$50 00	\$225 60

TABLE M.—2.—(CONTINUED.)

1850.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,	388	235	\$965,948	\$586,961	\$2,489 53	\$2,197 70
Boards and scantling,	751,245	4,469	10,586,885	40,222	14 09	9 00
Shingles, timber, staves, wood,	496,125	1,815	1,967,228	4,465	3 96	2 46
Ashes, pot and pearl,	14,233	2,156	1,587,600	250,096	110 13	116 00
Total of the forest,	1,261,991	8,795	\$15,117,661	\$881,744	\$11 97	\$100 25
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs,	6,720	15,364	\$43,856	\$615,882	\$6 52	\$40 00
Pork in the hog,		5,154		463,364		89 90
Pork,	11,996	1,250	790,054	85,943	65 85	68 75
Beef,	16,483	216	845,979	20,574	51 31	95 34
Bacon,	5,482	602	601,852	72,244	109 98	120 00
Cheese,	17,226	4,663	1,974,266	559,577	114 60	120 00
Butter,	8,950	3,839	2,352,150	1,075,079	226 81	380 04
Lard, lard oil, tallow,	6,114	113	782,039	15,828	129 54	138 30
Wool,	8,030	2,184	5,418,830	1,594,217	674 06	729 95
Hides,	5,635	1,141	1,282,938	373,801	245 42	239 96
Total products of animals,	79,919	20,572	\$14,048,108	\$4,773,209	\$175 77	\$162 50

VEGETABLE FOOD.						
Flour,	406,178	12,846	\$17,389,768	\$594,795	\$42 81	\$46 29
Wheat, rye, corn, corn meal, barley, oats, other grain,...	439,505	1,157	12,350,821	33,108	28 12	28 61
Bran and ship stuff,	21,196	114	406,201	69	19 16	00 60
Pean and beans,	2,929	1,923	101,065	72,141	34 52	37 53
Potatoes,	8,421	262	98,360	4,849	11 68	18 50
Dried fruit,	1,071	828	167,191	149,080	156 01	180 29
Total vegetable food,	879,300	17,130	\$13,513,426	\$853,952	\$34 70	\$28 00
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,	2,167	669	\$596,690	\$187,365	\$275 30	\$280 06
Unmanufactured tobacco,	1,778	147	612,741	21,355	344 62	145 27
Hemp, grass and clover seed,	858	1,398	113,000	195,760	131 70	140 02
Flax seed,	1,026	54	44,253	2,683	51 57	49 68
Hops,	571	257	224,540	102,755	293 25	399 70
Total all agricultural products,	6,400	2,535	\$1,591,424	\$509,918	\$248 66	\$301 65
Total agriculture,	965,619	49,027	\$46,152,958	\$6,137,079	\$47 89	\$125 17
MANUFACTURES.						
Domestic spirits,	9,606	3,235	\$475,842	\$210,317	\$49 49	\$65 01
Beer, linseed oil, oil, meal and oake, starob,	5,436	.....	291,194	.....	52 56	00 00
Leather, furniture,	10,695	3,726	2,822,330	975,730	263 97	261 70
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines and parts thereof,	43,766	529	2,193,794	16,966	50 12	32 07
Iron ware,	222	1,351	19,398	81,033	87 37	52 67
Domestic woollens,	580	1,206	996,926	2,122,648	1,701 59	1,760 07
Domestic cottons,	1,145	837	456,298	502,167	398 68	599 96
Domestic salt,	124,971	24	545,114	192	4 36	8 00
Foreign salt,	3,777	.....	132,642	.....	25 11	0 00
Total manufactures,	200,218	10,908	\$7,933,108	\$3,909,053	\$39 62	\$358 36

TABLE M.—2, 1850.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
MERCHANDISE.						
At 8 mills,	114,007	26,791	\$67,461,241	\$16,182,541	\$591 64	\$604 02
Sugar, molasses, coffee, nails and spike, iron, railroad iron, steel, sheet iron, tin, crockery and glass ware, ...	155,363	3,397	13,673,968	397,199	88 01	116 92
Oysters and clams,	1,517	802	44,119	16,044	28 95	20 00
Total merchandise,	269,370	30,368	\$81,135,199	\$16,579,740	\$301 20	\$545 96
Other articles,	397,419	14,714	\$6,059,003	\$494,532	\$15 97	\$33 60
Grand total,	3,076,617	113,812	\$156,397,929	\$28,002,148	\$50 83	\$246 03

TABLE M.—2.—(CONTINUED.)

1851.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,	246	234	\$536,483	\$584,405	\$2,180 84	\$2,497 45
Boards and scantling,	845,845	4,950	8,642,317	47,015	10 21	9 49
Shingles, timber, staves, wood,	538,121	2,603	2,262,037	21,535	4 20	11 75
Ashes, pot and pearl,	9,846	974	1,108,912	116,385	116 58	119 49
Total of the forest,	1,393,698	8,161	\$12,549,754	\$769,304	\$9 00	\$94 27
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs,	1,258	14,168	\$64,960	\$1,216,756	\$51 63	\$85 88
Pork in the hog,		1,878		206,661		110 04
Pork,	9,384	563	859,326	52,906	91 47	93 97
Beef,	13,657	200	813,016	10,625	59 62	53 12
Bacon,	6,151	222	850,696	39,918	138 30	179 81
Cheese,	15,170	7,538	1,821,819	980,027	120 09	130 01
Butter,	6,599	6,053	1,808,318	1,695,831	213 49	280 16
Lard, lard oil, tallow,	6,827	76	1,126,342	13,745	164 98	184 80
Wool,	6,573	2,004	4,256,879	1,563,256	647 63	780 06
Hides,	4,426	1,145	1,000,554	274,935	226 06	240 11
Total products of animals,	68,797	33,847	\$12,586,950	\$6,054,656	\$182 14	\$175 92
VEGETABLE FOOD.						
Flour,	416,175	11,403	\$15,184,194	\$422,336	36 04	\$37 03
Wheat, rye, corn, corn meal, barley, oats, other grain, ..	581,928	3,376	12,664,198	87,178	23 48	25 82
Bran and ship stuff,	26,943	2,595	480,090	41,524	17 82	16 00

TABLE M.—2, 1851.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
Peas and beans,.....	4,360	478	\$147,895	\$18,029	\$33 92	\$37 71
Potatoes,.....	18,488	1,457	270,462	33,810	14 62	23 20
Dried fruit,.....	788	730	147,154	116,829	184 74	160 03
Total vegetable food,.....	1,048,682	20,039	\$28,893,933	\$719,716	\$27 55	\$35 91
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,.....	2,357	579	\$517,305	\$127,330	\$210 99	\$219 91
Unmanufactured tobacco,.....	3,058	185	911,042	81,486	297 91	440 46
Hemp, grass and clover seed,.....	1,109	841	137,976	126,242	124 41	252 49
Flax seed,.....	626	18	28,068	732	44 83	40 66
Hops,.....	635	564	252,184	299,059	397 10	530 24
Total all agricultural products,.....	7,785	2,187	\$1,846,575	\$634,849	\$237 19	\$285 71
Total agriculture,.....	1,125,264	56,073	\$43,277,458	\$7,409,211	\$38 36	\$132 13
MANUFACTURES.						
Domestic spirits,.....	19,389	5,093	\$891,626	\$229,194	\$45 96	\$45 00
Beer, linseed oil, oil, meal and cake, starch,.....	5,960	110	305,179	3,350	51 20	30 45
Leather, furniture,.....	8,762	3,715	2,350,943	927,037	267 16	249 00
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines and parts thereof,.....	43,208	389	2,250,273	13,864	52 08	35 90
Iron ware,.....	8,595	1,313	345,124	78,196	40 15	60 01
Domestic woollens,.....	411	1,144	735,463	2,014,359	1,791 88	1,760 80
Domestic cottons,.....	1,419	573	612,238	275,025	432 19	479 97
Domestic salt,.....	131,060	43	732,622	383	5 58	8 80
Foreign Salt,.....	3,745	4	31,057	39	8 66	9 75
Total manufactures,.....	222,529	12,384	\$8,255,575	\$3,542,041	\$37 14	\$286 82

MERCHANDISE.

At 8 mills,	120,484	28,577	\$70,788,022	\$17,146,171	\$287 53	\$599 99
Sugar, molasses, coffee, nails and spike, iron, railroad						
iron, steel, sheet iron, tin, crockery and glass ware, ...	244,920	4,162	17,043,298	396,056	72 03	95 16
Oysters and clams,	506	1,073	15,661	32,195	30 95	30 00
Total merchandise,	365,404	32,739	\$88,531,320	\$17,632,232	\$242 28	\$538 56
Other articles,	475,838	25,349	\$7,367,694	\$630,193	\$15 48	\$24 86
Grand total,	3,582,733	134,706	\$159,981,801	\$29,953,023	\$44 56	\$222 65

TABLE M.—3.

Tons delivered at tide water by canals and railroads.

1848.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,	279	88	\$695,888	\$220,120	\$2,494 22	\$2,501 37
Boards and scantling,	449,118	28	3,931,277	249	8 44	8 89
Shingles, timber, staves, wood,	143,992	.....	1,135,031	.....	7 87	.....
Ashes, pot and pearl,	9,883	539	1,146,870	64,710	116 04	120 05
Total of the forest,	603,272	655	\$6,909,015	\$285,079	\$11 45	\$432 23
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs, .....	.....	.....	.....	.....	.....	.....
Pork in the hog, .....	.....	2,891	.....	\$318,007	.....	\$109 99
Pork,	14,069	121	\$967,320	8,338	\$68 75	68 90
Beef,	9,691	3,671	605,700	229,440	62 50	61 41
Bacon,	4,091	343	490,997	41,187	120 00	120 00
Cheese,	21,640	948	3,029,169	132,682	139 98	143 12
Butter,	11,865	1,229	3,359,391	306,325	283 13	322 48
Lard, lard oil, tallow,	4,963	22	761,757	3,277	153 49	148 95

Wool,.....	4,267	426	2,304,044	229,897	539 96	539 68
Hides,.....	88	.....	17,494	.....	198 79	.....
Total products of animals,.....	70,674	9,651	\$11,535,782	\$1,359,162	\$163 22	\$140 84
VEGETABLE FOOD.						
Flour,.....	338,158	6,914	\$17,471,401	\$357,227	\$51 66	\$51 66
Wheat, rye, corn, corn meal, barley, oats, other grain,...	254,325	144	7,496,941	3,870	29 47	26 87
Bran and ship stuff,.....	13,319	43	172,578	525	12 95	12 29
Peas and beans,.....	2,275	417	75,808	13,930	33 32	33 40
Potatoes,.....	3,454	10	53,109	267	15 38	26 70
Dried fruit,.....	914	343	164,533	61,754	180 01	180 01
Total vegetable food,.....	612,445	7,871	\$25,434,370	\$437,513	\$41 38	\$55 57
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,.....	87	.....	\$11,356	.....	\$130 52	.....
Unmanufactured tobacco,.....	176	1-5	43,127	\$54	245 04	\$250 00
Hemp, grass and clover seed,.....	883	144	116,692	20,151	140 08	139 24
Flax seed,.....	882	7	35,268	266	39 98	38 00
Hops,.....	799	121	159,695	24,291	199 87	200 75
Total all other agricultural products,.....	2,777	272	\$366,138	\$44,762	\$131 88	\$164 71
Total agriculture,.....	685,896	17,794	\$37,336,290	\$1,841,437	\$54 40	\$103 49
MANUFACTURES.						
Domestic spirits,.....	8,031	972	\$385,471	\$6,659	\$47 98	\$58 67
Beer, linseed oil, oil, meal and cake, starch,.....	.....	.....	.....	.....	.....	.....
Leather, furniture,.....	3,044	391	843,378	17,189	277 06	43 96
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines and parts thereof,.....	20,701	.....	921,493	.....	44 46	.....
Iron ware,.....	1,157	35	80,993	2,418	76 05	69 08
Domestic woollens,.....	552	1,065	882,851	1,704,319	1,691 28	1,600 30
Domestic cottons,.....	1,249	599	622,652	299,560	482 19	500 00
Domestic salt,.....	10,133	.....	106,522	.....	10 51	.....
Foreign salt,.....	.....	.....	.....	.....	.....	.....
Total manufactures,.....	44,867	3,062	\$3,834,360	\$2,030,145	\$85 46	\$663 01

TABLE M.—3, 1848.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
MERCHANDISE.						
At S mills,						
Sugar, molasses, coffee, nails and spikes, iron, railroad						
iron, steel, sheet iron, tin, crockery and glass ware,...						
Oysters and clams,.....						
Total merchandise,.....	6,333	12	\$593,619	\$3,737	\$93 73	\$311 42
Other articles,.....	107,527	2,576	\$2,210,623	\$103,010	\$20,55	\$40 00
Grand total,	1,447,905	24,090	\$50,833,907	\$4,263,408	\$35 19	\$176 91

TABLE M.—3.—(CONTINUED.)

1849.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,	277	89	\$692,864	\$222,259	\$2,501 31	\$2,497 62
Birds and scantling,	508,322	82	4,459,157	740	8 77	9 02
Shingles, timber, staves, wood,	142,859	.....	1,023,965	.....	7 76	.....
Ashes, pot and pearl,	8,091	2,055	1,016,800	256,291	125 67	124 71
Total of the forest,	665,547	2,226	\$7,192,796	\$479,320	\$10 80	\$215 32
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs, .....	.....	.....	.....	.....	.....	.....
Pork in the hog, .....	.....	5,551	.....	\$666,082	.....	\$119 99
Pork,	11,838	501	\$756,421	32,113	\$64 06	64 02
Beef,	16,877	8,220	1,224,360	616,464	73 73	74 99
Bacon,	4,268	183	514,666	21,952	120 02	119 90
Cheese,	21,049	1,439	2,736,211	187,009	134 63	129 96
Butter,	10,439	1,767	2,933,832	494,733	281 04	279 98
Lard, lard oil, tallow,	4,542	16	635,814	2,286	139 98	142 87
Wool,	6,367	1,278	4,072,358	818,108	639 27	640 07
Hides,	299	.....	59,637	.....	199 45	.....
Total products of animals,	75,699	18,953	\$12,945,290	\$2,638,747	\$171 01	\$149 77
VEGETABLE FOOD.						
Flour,	352,413	13,211	\$16,315,435	\$611,615	\$46 29	\$46 29
Wheat, rye, corn, corn meal, barley, oats, other grain, ..	226,644	46	7,887,386	1,512	30 33	33 55
Bran and ship stuff,	18,407	.....	242,755	.....	13 19	.....

TABLE M.—3, 1849.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
Peas and beans,.....	4,807	484	\$160,234	\$16,139	\$33 33	\$33 33
Potatoes,.....	7,266	54	117,918	887	16 22	16 42
Dried fruit,.....	389	509	78,007	101,891	200 54	200 18
Total vegetable food,.....	689,926	14,301	\$24,801,735	\$732,044	\$35 80	\$51 19
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,.....	158	.....	\$29,240	.....	\$185 06	.....
Unmanufactured tobacco,.....	948	7	237,007	\$1,117	250 00	\$245 28
Hemp, grass and clover seed,	1,240	1,073	149,746	128,797	119 79	120 03
Flax seed,.....	690	.....	30,536	.....	44 25	.....
Hops,.....	939	273	252,893	76,521	269 72	280 29
Total all agricultural products,.....	3,975	1,353	\$708,422	\$207,035	\$178 21	\$153 75
Total agriculture,	769,600	34,609	\$38,455,456	\$3,777,826	\$50 00	\$109 15
MANUFACTURES.						
Domestic spirits,.....	10,537	2,112	\$526,938	\$105,624	\$50 00	\$50 00
Beer, linseed oil, oil, meal and cake, starch, .....	.....	.....	.....	.....	.....	.....
Leather, furniture,.....	3,332	954	996,711	302,189	299 13	317 80
Agricultural implements, bar iron, pig iron, castings, bloom iron, machinery and parts thereof,.....	18,777	2	644,985	66	34 41	33 00
Iron ware,.....	869	69	52,131	4,136	59 99	60 00
Domestic woollens,.....	529	1,042	895,991	1,771,868	1,693 75	1,700 45
Domestic cottons,.....	1,248	615	698,818	344,234	550 32	559 73
Domestic salt,.....	8,996	.....	73,666	.....	8 18	.....
Foreign salt,.....	.....	.....	.....	.....	.....	.....
Total manufactures,	44,288	4,794	\$3,899,238	\$2,528,157	\$87 81	\$527 34

MERCHANDISE.						
At 8 mills, .....	.....	.....	.....	.....	.....	.....
Sugar, molasses, coffee, nails and spikes, iron, railroad iron, steel, sheet iron, tin, crockery and glass ware,...	.....	.....	.....	.....	.....	.....
Oysters and clams, .....	.....	.....	.....	.....	.....	.....
Total merchandise,.....	5,873	6	\$508,048	\$568	\$86 64	\$94 66
Other articles,.....	94,638	7,865	\$2,319,983	\$312,719	\$24 50	\$39 61
Grand total,.....	1,579,946	49,499	\$52,375,521	\$7,098,590	\$33 15	\$143 40

TABLE M.—3.—(CONTINUED.)

1850.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,.....	328	190	\$818,845	\$474,506	\$2,557 45	\$2,497 40
Boards and scantling,.....	726,559	1,447	6,365,724	13,028	8 76	9 00
Shingles, timber, staves, wood,.....	207,626	.....	1,162,503	.....	7 76	.....
Ashes, pot and pearl,.....	13,355	917	1,518,035	106,314	113 67	115 93
Total of the forest,.....	947,768	2,618	\$10,316,117	\$595,051	\$10 88	\$227 25
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs,.....	.....	5,021	.....	\$301,882	.....	\$60 12
Pork in the hog,.....	.....	4,444	.....	444,407	.....	100 00
Pork,.....	7,459	205	\$512,798	14,190	\$68 75	68 88
Beef,.....	15,561	304	866,789	17,118	55 70	56 30
Bacon,.....	4,840	80	580,922	9,603	120 03	120 03
Cheese,.....	16,292	4,360	2,955,122	523,247	120 00	122 34
Butter,.....	8,551	3,314	2,391,863	928,070	279 71	280 00
Lard, lard oil, tallow,.....	4,736	6	703,898	791	131 53	143 50

Wool,	5,993	1,163	4,372,578	848,765	729 63	729 80
Hides,	229	9	54,891	2,160	239 65	240 00
Total products of animals,	63,661	18,917	\$11,438,861	\$3,068,233	\$179 68	\$163 05
- VEGETABLE FOOD.						
Flour,	351,657	7,896	\$16,280,425	\$39,480	\$46 29	\$50 00
Wheat, rye, corn, corn meal, barley, oats, other grain, ..	296,857	583	9,023,035	17,953	30 39	30 79
Bran and ship stuff,	201,232	.....	927,853	.....	4 61	.....
Peas and beans,	2,381	455	89,382	17,062	37 54	37 49
Potatoes,	6,926	59	123,269	1,709	17 79	18 28
Dried fruit,	734	309	132,019	55,619	179 86	179 99
Total vegetable food,	859,687	9,304	\$26,275,983	\$131,823	\$30 56	\$14 17
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,	557	2	\$153,239	\$717	\$275 12	\$358 50
Unmanufactured tobacco,	398	5	159,005	1,949	399 51	389 80
Hemp, grass, and clover seed,	742	655	97,066	85,142	136 80	129 83
Flax seed,	573	5	27,745	248	48 42	49 60
Hops,	430	223	159,647	89,360	371 04	400 71
Total all agricultural products,	2,700	890	\$596,792	\$177,416	\$221 03	\$199 34
Total agriculture,	926,048	29,111	\$38,311,546	\$3,397,472	\$41 37	\$116 70
MANUFACTURES.						
Domestic spirits,	7,579	1,840	\$394,301	\$119,617	\$52 07	\$65 00
Beer, linseed oil, oil meal and cake, starch,	4,587	.....	225,879	.....	47 06	.....
Leather, furniture,	4,139	1,533	1,258,248	483,293	304 00	315 25
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines, and parts thereof,	14,683	.....	575,677	.....	39 20	.....
Iron ware, .....	.....	115	.....	6,875	.....	59 79
Domestic woollens,	509	1,185	891,204	2,085,960	1,750 89	1,759 45
Domestic cottons,	934	584	558,532	350,517	598 00	600 00
Domestic salt,	6,582	.....	52,612	.....	7 97	.....
Foreign salt,	663	.....	5,311	.....	8 01	.....
Total manufactures,	39,669	5,257	\$3,960,860	\$3,046,262	\$99 82	\$579 46

TABLE M.—3, 1850.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
MERCHANDIZE.						
At 8 mills,						
Sugar, molasses, coffee, nails and spikes, iron, railroad iron, steel, sheet iron, tin, crockery and glass ware,						
Oysters and clams,						
Total merchandize,	7,105	5	\$563,615	\$1,307	\$79 32	\$26 14
Other articles,	113,273	4,975	\$2,323,495	\$198,867	\$20 50	\$39 97
Grand total,	2,033,863	41,906	\$55,474,637	\$7,238,959	\$27 27	\$172 50

TABLE M.—3.—(CONTINUED.)

1851.

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
THE FOREST.						
Fur and peltry,.....	242	119	\$605,200	\$299,656	\$2,500 82	\$2,518 11
Boards and scantling,.....	711,731	1,688	7,213,226	16,033	10 13	9 49
Shingles, timber, staves, wood,.....	194,024	.....	1,500,479	.....	7 78	.....
Ashes, pot and pearl,.....	7,271	390	841,731	46,596	.....	.....
Total of the forest,.....	913,268	2,529	\$10,160,656	\$368,512	\$11 12	\$145 71
AGRICULTURE.						
PRODUCE OF ANIMALS.						
Live cattle, live sheep, live hogs,.....	.....	5,557	.....	\$527,476	.....	\$92 92
Pork in the hog,.....	.....	1,321	.....	145,365	.....	110 00
Pork,.....	7,203	9	\$663,696	826	\$92 17	91 55
Beef,.....	12,215	139	468,054	7,386	38 31	43 13
Bacon,.....	5,452	14	980,956	2,522	179 87	180 14
Cheese,.....	12,801	6,702	1,663,606	877,321	129 88	130 00
Butter,.....	4,784	5,013	1,338,997	1,403,848	279 05	280 04
Lard, lard oil, tallow,.....	6,733	44	1,158,857	10,007	172 11	227 43
Wool,.....	5,259	1,452	4,101,415	1,232,739	779 86	910 97
Hides,.....	286	33	68,434	7,392	239 34	224 00
Total products of animals,.....	54,733	20,251	\$10,444,197	\$4,301,490	\$190 82	\$212 40
VEGETABLE FOOD.						
Flour,.....	362,714	5,306	\$13,436,542	\$196,536	\$37 04	\$37 04
Wheat, rye, corn, corn meal, barley, oats, other grain,...	426,214	1,593	10,442,791	43,593	24 49	30 79
Bran and ship stuff,.....	22,018	193	352,295	156	.....	.....

TABLE M.—3, 1851.—(CONTINUED.)

ARTICLES.	QUANTITIES TRANSPORTED IN TONS. (2,000 lbs.)		VALUE OF ARTICLES TRANSPORTED.		VALUE OF ARTICLES PER TON. (2,000 lbs.)	
	By canal.	By railroad.	By canal.	By railroad.	By canal.	By railroad.
Peas and beans,.....	3,825	3,378	\$141,698	\$126,683	\$37 05	\$37 50
Potatoes,.....	17,949	1,009	341,541	23,420	19 03	23 21
Dried fruit,.....	712	192	114,108	30,172	158 85	155 06
Total vegetable food,	833,542	11,671	\$24,848,958	\$421,157	\$29 81	\$36 08
ALL OTHER AGRICULTURAL PRODUCTS.						
Cotton,.....	110	.....	\$23,994	.....	\$218 85	.....
Unmanufactured tobacco,.....	1,851	15	813,712	\$6,677	438 21	\$445 13
Hemp, grass and clover seed,.....	847	406	115,345	60,947	136 17	150 12
Flax seed,.....	61	4	2,426	176	39 77	44 00
Hope,.....	276	378	146,287	196,962	530 00	520 98
Total all agricultural products,	3,145	803	\$1,101,758	\$264,763	\$350 48	\$327 67
Total agriculture,	891,420	32,725	\$36,394,913	\$4,987,409	\$40 82	\$15
MANUFACTURES.						
Domestic spirits,	13,938	1,708	\$627,406	\$76,852	\$45 03	\$44 98
Beer, linseed oil, oil meal and cake, starch,.....	4,694	.....	224,197	.....	47 77	.....
Leather, furniture,.....	4,625	1,454	1,334,769	431,133	288 59	296 50
Agricultural implements, bar iron, pig iron, castings, bloom iron, machines and parts thereof,.....	21,099	.....	831,182	.....	39 39	.....
Iron ware,.....	2	155	.....	9,340	55 50	60 25
Domestic woollens,.....	412	1,135	725,419	1,998,249	1,760 72	1,760 67
Domestic cottons,.....	1,124	373	539,312	179,022	479 81	479 67
Domestic salt,	6,408	2	56,387	13	8 79	6 50
Foreign salt, .....	.....	.....	.....	.....	.....	.....
Total manufactures,	52,302	4,827	\$4,325,783	\$2,695,609	\$82 87	\$358 80

MERCHANDISE.						
At 8 mills,.....	.....	.....	.....	.....	.....	.....
Sugar, molasses, coffee, nails and spikes, iron, railroad iron, steel, sheet iron, tin, crockery and glass ware,...	.....	.....	.....	.....	.....	.....
Oysters and clams,.....	.....	.....	.....	.....	.....	.....
Total merchandise,	4,580	12	\$329,423	\$764	\$71 90	\$63 66
Other articles,	115,581	7,14	\$2,706,733	\$280,147	\$23 41	\$30 94
Grand total,.....	1,077,151	47,107	\$53,927,508	\$8,332,441	\$27 00	\$176 88

(N)

TABLE

Showing the cost and cost per mile of some of the principal railroads in the United States.

NAME OF ROAD.	Miles.	Whole cost.	Cost per mile.
Baltimore & Ohio,.....	186.00	\$10,096,638 00	\$54,283 00
Baltimore & Washington Branch,.....	30.50	1,647,000 00	54,000 00
Philadelphia, Wilmington & Baltimore,.....	97.00	6,402,000 00	66,000 00
Baltimore & Susquehanna,.....	69.50	3,297,775 00	47,450 00
Columbia,.....	82 00	4,204,960 00	51,280 00
Pennsylvania Portage,.....	36.67	1,867,032 00	50,920 00
Reading,.....	94.00	12,107,482 00	128,803 00
Richmond & Petersburg,.....	22.00	877,492 00	39,886 00
Georgia,.....	213.00	3,930,057 00	16,766 00
Little Miami,.....	83.50	2,409,748 00	27,661 00
Mansfield & Sandusky City,.....	56.00	1,692,840 00	30,229 00
Mad River & Lake Erie,.....	134.00	1,875,638 00	12,560 00
Totals and average,.....	1,104.17	\$50,409,662 00	\$45,653 89

TABLE-N.—(CONTINUED.)

NAME.	State.	Length in miles.	Cost.	Cost per mile.	Width at surface. Feet.	Depth of water. Feet.	Locks.				Burthen of boats. Tons.
							Length. Feet.	Width. Feet.	Number.	Lift. Feet.	
Union,	Penn.,	82	.....	.....	38	4	75	8½	95	519	.....
Delaware and Hudson,	N. York and Penn.,	108	{ \$2,500 000	\$23,150	32	4	76	9 }	107	950	50 }
do enlarged,	do	108	{ 6,500 000	60,200	44	6	100	15 }		.....	140 }
Delaware & Raritan and feeder,	New-Jersey,	43	\$2,844 103	\$66,150	75	7	110	24	18	116	228
Morris and Essex,	do	101	3,100 000	30,693	32	4	.....	.....	29 locks } 22 planes }	1,674	.....
Total, .....	.....	144	\$5,944 103	\$41,300	.....	.....	.....	.....	.....	.....	.....
Chesapeake and Delaware,	Del. and Md.,	13½	\$2,750 000	\$203,703	60	10	100	22	4	.....	.....
Chesapeake and Ohio,	do	191	10,000 000	52,356	70	6	.....	.....	.....	600	150
Total, .....	.....	204½	\$12,750 000	\$62,350	.....	.....	.....	.....	.....	.....	.....
Ohio and Erie,	Ohio,	307	\$4,695 824	\$15,300	40	4	90	15	152	1,185	.....
Miami,	do	178	3,750 000	21,067	.....	.....	.....	.....	102	781	.....
Maboning,	do	85	764 372	8,992	.....	.....	.....	.....	.....	.....	.....
Sandy and Beaver,	do	75	1,500 000	19,722	.....	.....	90	15	.....	.....	80
Total, .....	.....	646	\$10,710 196	\$16,600	.....	.....	.....	.....	.....	.....	.....
James River and Kanawha,	Virginia,	147	\$5,020 050	\$34,150	40	4	100	15	.....	1,916	.....
Wabash and Erie,	Indiana,	379	.....	.....	60 }	4 }	.....	.....	.....	.....	.....
do	do	90	\$3,057 120	\$33,968	45 }	3 }	.....	.....	.....	.....	.....
Illinois and Michigan,	Illinois,	102	\$8,654 337	\$84,846	60	6	.....	.....	2	20	150

Welland,	Canada,	36	\$7,000 000	\$194,444	71	10	150	26 $\frac{1}{2}$	27	346	500
St. Lawrence,	do	10	1,000 000	100,000	90	10	200	45	6	30	.....
Cornwall,	do	12	2,000 000	166,666	150	10	200	55	7	48	.....
Beauharnois,	do	11	1,500 000	136,363	120	10	200	45	9	82	.....
Lachine,	do	8 $\frac{1}{2}$	2,000 000	235,934	120	10	200	55	5	45	.....
Chambly,	do	12	400 000	33,333	60	8	120	24	9	74	.....
Total, .....	.....	89 $\frac{1}{2}$	\$13,900 000	\$155,300							
Rideau, .....	.....	129 $\frac{1}{2}$	.....	.....			134	33	53	355	.....



(O.)

PROPORTION BETWEEN THE WEIGHT OF VESSELS AND
THEIR CARGOES.

	Weight of vessels, cargo.		Proportion.
Brigs and schooners on the lakes,.....	178	400	1 to 2.25
do do sharp,	144	300	1 " 2.08
Propellers, "	290	500	1 " 1.72
Lake boats on the canal,.....	32	85	1 " 2.66
Line do do do	31	70	1 " 2.26
Scow do do do	24	85	1 " 3.54
do decked do do	27	80	1 " 2.96
Lake boats, enlarged size, running on pres- ent canal,.....	40	130	1 " 3.33
Enlarged boats and canal,.....	50	250	1 " 5.00

The total amount of through freight carried on the central line
of railroads from Buffalo to Albany in 1852, consisting chiefly of
live stock, butter, cheese, and wool, was..... 18,144 tons.
The same from Albany to Buffalo, consisting chiefly
of light merchandize, was..... 13,143 do
Total through freight carried in, 1852,..... 31,287 do





Canals
Rail Roads
Shortest line of route
Place the Ferryage is required
Scale of Miles

((M A P))
of the
VARIOUS CHANNELS
for Conveying
The Trade of the North West
TO THE
((ATLANTIC SEA-BOARD))
Exhibiting the Tributaries & Drainage
of the Trade into each
and the Effect of the
Enlargement of the Erie Canal
Illustrating the Position taken by
William J. M. Apine, C.E.
in the Annual Report
as State Engineer and Surveyor of the State of
NEW YORK
1853.

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